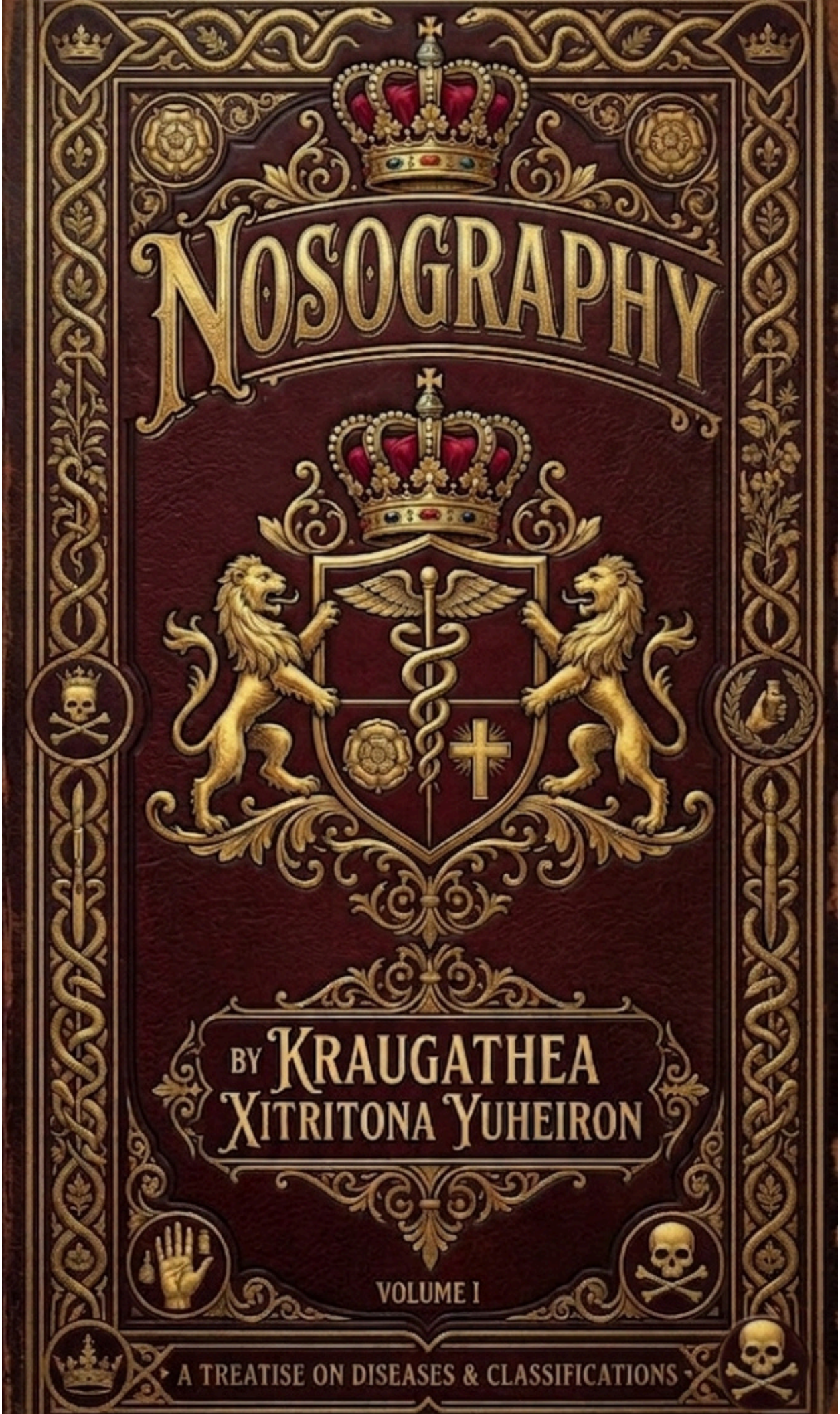
NOSOGRAPHY
BY KRAUGATHEA XITRITONA YUHEIRON
VOLUME I
A TREATISE ON DISEASES & CLASSIFICATIONS

VERITAS · SCRIPTA · AETERNITAS
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Classification of Infectious Diseases

Infectious diseases are grouped based on the type of pathogen (germ) that causes them:

Chapter 1. Viral Infectious Diseases

Caused by viruses (very small infectious agents)

Examples:

COVID-19 (Coronavirus disease)

Influenza (Flu)

HIV/AIDS

Hepatitis B and C

Measles

Chickenpox (Varicella)

Polio

Ebola virus disease

Rabies

Dengue fever

Yellow fever

HPV (Human Papillomavirus)

Chapter 2. Bacterial Infectious Diseases

Caused by bacteria

Examples:

Tuberculosis (TB)

Cholera

Typhoid fever

Pneumonia (bacterial type)

Meningitis

Gonorrhea

Syphilis

Diphtheria

Leprosy (Hansen’s disease)

Whooping cough (Pertussis)

Tetanus

Chapter 3. Fungal Infectious Diseases

Caused by fungi

Examples:

Ringworm (Tinea)

Athlete’s foot

Candidiasis (yeast infection)

Aspergillosis

Histoplasmosis

Cryptococcosis

Chapter 4. Parasitic Infectious Diseases

Caused by parasites (protozoa, worms, or ectoparasites)

Protozoa:

Malaria

Amoebiasis (Entamoeba histolytica infection)

Giardiasis

Toxoplasmosis

Sleeping sickness (Trypanosomiasis)

Worms (Helminths):

Schistosomiasis (Bilharzia)

Tapeworm infection

Hookworm infection

Ascariasis (roundworm)

Ectoparasites:

Scabies

Lice infestation

Chapter 5. Prion Diseases (Rare but serious)

Caused by abnormal proteins called prions

Examples:

Creutzfeldt-Jakob disease (CJD)

Mad Cow Disease (BSE)

Kuru (rare brain disease)

Chapter 6. Opportunistic Infectious Diseases

These occur when the immune system is weak

Examples:

Pneumocystis pneumonia (in HIV patients)

Oral thrush

Cytomegalovirus (CMV) infection

Classification of COVID-19

COVID-19 can be classified in several scientific ways:

1. By type of organism

Virus

2. By family

Coronaviridae (Coronavirus family)

3. By genus

Betacoronavirus

4. By specific virus name

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)
(This is the virus that causes COVID-19)

5. By disease type

Infectious respiratory disease

6. By transmission type

Communicable disease (contagious disease)

Description of COVID-19

COVID-19 (Coronavirus Disease 2019) is a highly infectious respiratory illness caused by the virus SARS-CoV-2. It first appeared in Wuhan, China in 2019 and later spread globally, causing a pandemic.

How it spreads

Through respiratory droplets when an infected person coughs, sneezes, talks, or breathes

Close contact with infected persons

Touching contaminated surfaces and then touching the face (less common but possible)

Common symptoms

Fever

Dry cough

Tiredness

Sore throat

Loss of taste or smell

Difficulty breathing (in severe cases)

Severe cases may lead to

Pneumonia

Acute respiratory distress

Organ failure

Death (especially in elderly or people with weak immunity)

Prevention methods

Vaccination

Wearing face masks (especially in crowded places)

Hand washing and sanitizing

Social distancing

Avoiding close contact with infected individuals

In simple terms

COVID-19 is a contagious viral disease that affects the respiratory system and can range from mild illness to severe life-threatening conditions.

Classification of Influenza

Influenza (flu) is classified based on the type of virus that causes it:

1. Virus family

Family: Orthomyxoviridae

These are RNA viruses (they carry genetic material as RNA)

2. Types of influenza viruses

Influenza A

Influenza B

Influenza C

Influenza D

Description of Each Type

Influenza A

Most dangerous and common cause of epidemics and pandemics

Infects humans and animals (birds, pigs, etc.)

Has subtypes based on proteins: H and N (e.g., H1N1, H5N1)

Changes easily (mutates), which is why new outbreaks occur

Responsible for major outbreaks like swine flu and bird flu

Influenza B

Infects only humans (mostly)

Causes seasonal flu outbreaks

Usually less severe than Influenza A

Does not cause pandemics

Influenza C

Causes mild respiratory illness

Rare compared to A and B

Usually not a major public health concern

Influenza D

Mostly affects cattle and livestock

Not known to infect humans significantly

Important in veterinary health

General Description of Influenza (Disease Overview)

Influenza is a highly contagious viral respiratory disease that affects the nose, throat, and lungs.

Causes

Influenza viruses spread through:

Air droplets (coughing/sneezing)

Touching contaminated surfaces

Symptoms

Fever

Cough

Sore throat

Body aches

Headache

Fatigue

Runny nose

Prevention

Vaccination (flu shot)

Hand washing

Avoiding close contact with infected people

Wearing masks in outbreaks

Treatment

Rest and fluids

Antiviral drugs (e.g., oseltamivir in severe cases)

Classification of HIV/AIDS

1. HIV (Human Immunodeficiency Virus)

HIV infection

HIV is a virus (retrovirus) that attacks the body's immune system, especially the CD4 (T-helper) cells, which help fight infections.

It is classified as a viral infectious disease

Specifically a retrovirus (lentivirus family)

It is a blood-borne and sexually transmitted infection (STI)

2. AIDS (Acquired Immunodeficiency Syndrome)

AIDS

AIDS is not a separate virus. It is the final stage of untreated HIV infection.

It is classified as a syndrome (a group of symptoms and infections)

It represents severe immune system failure

It occurs when HIV has destroyed many CD4 cells

Description of HIV/AIDS

What HIV does:

Enters the body through blood, sexual fluids, or from mother to child
Attacks and weakens the immune system

Reduces CD4 cell count over time

Makes the body vulnerable to infections

What AIDS is:

Occurs when HIV is not treated for many years

CD4 count becomes very low (usually below 200 cells/mm^3)

The body can no longer fight common diseases

Leads to opportunistic infections like tuberculosis, pneumonia, and fungal infections

Key symptoms

Early HIV (may be mild or hidden):

Fever

Fatigue

Swollen lymph nodes

Sore throat

Rash

AIDS stage:

Severe weight loss

Persistent fever and night sweats

Chronic diarrhea

Tuberculosis

Extreme weakness

Frequent serious infections

Important facts

HIV is manageable but not fully cured yet

With treatment (ART – antiretroviral therapy), people can live long healthy lives
AIDS can be prevented from developing with early treatment
It is not spread by touching, sharing food, or casual

contact

Hepatitis B and Hepatitis C

Hepatitis means inflammation of the liver. Both Hepatitis B and Hepatitis C are viral infections that mainly affect the liver and can become chronic (long-term).

Hepatitis B (HBV)

Classification

Disease type: Viral hepatitis

Causative agent: Hepatitis B virus (HBV)

Virus family: Hepadnaviridae

Genetic material: Partially double-stranded DNA virus

Mode of infection: Blood and body fluids

Transmission

HBV spreads through:

Unprotected sexual contact

Sharing needles or sharp objects

Blood transfusion with infected blood

Mother to child during childbirth

Unsafe tattooing or piercing

Types of Hepatitis B

Acute Hepatitis B

Short-term infection

May resolve on its own

Chronic Hepatitis B

Lasts more than 6 months

Can lead to liver damage

Signs and Symptoms

Fatigue

Fever

Loss of appetite

Nausea and vomiting

Yellow eyes or skin (jaundice)

Dark urine

Abdominal pain

Complications

Liver cirrhosis

Liver failure

Liver cancer

Prevention

Vaccination (very effective)

Safe sex practices

Avoid sharing needles or razors

Screening of blood products

Treatment

Antiviral medications

Regular monitoring

Healthy lifestyle and avoiding alcohol

Hepatitis C (HCV)

Classification

Disease type: Viral hepatitis

Causative agent: Hepatitis C virus (HCV)

Virus family: Flaviviridae

Genetic material: Single-stranded RNA virus

Mode of infection: Mainly blood-to-blood contact

Transmission

HCV spreads through:

Sharing needles

Unscreened blood transfusion

Contaminated medical equipment

Needle-stick injuries

Less commonly through sexual contact

Types of Hepatitis C

Acute Hepatitis C

Early stage after infection

Often has few symptoms

Chronic Hepatitis C

Long-term infection

Very common if untreated

Signs and Symptoms

Weakness

Fatigue

Joint pain

Nausea

Jaundice

Swollen abdomen in severe cases

Complications

Chronic liver disease

Cirrhosis

Liver cancer

Prevention

Avoid sharing sharp objects

Proper sterilization of medical tools

Safe blood transfusion practices

Treatment

Direct-acting antiviral drugs (DAAs)

Many patients can be cured with treatment

Major Differences Between Hepatitis B and C

Feature

Hepatitis B

Hepatitis C

Virus Type

DNA virus

RNA virus

Vaccine Available

Yes

No widely used vaccine

Common Spread

Sex, blood, childbirth

Mainly blood

Cure

Usually controlled

Often curable

Chronic Infection

Possible

Very common

Medical Classification of Viral Hepatitis

Viral hepatitis diseases include:

Hepatitis A

Hepatitis B

Hepatitis C

Hepatitis D

Hepatitis E

They are classified under infectious diseases affecting the liver.

For academic purposes, HBV and HCV are also classified as:

Communicable diseases

Blood-borne viral infections

Hepatotropic viral diseases

Classification of Measles

Measles is classified as a viral infectious disease caused by the measles virus.

Scientific Classification

Disease Type: Viral disease

Causative Agent: Measles virus

Virus Family: Paramyxoviridae

Genus: Morbillivirus

Measles is also called rubeola.

Description of Measles

Measles is a highly contagious airborne disease that spreads through:

Coughing

Sneezing

Breathing infected droplets

An infected person can spread the virus even before the rash appears.

Main Signs and Symptoms

Common symptoms include:

High fever

Runny nose

Red watery eyes

Cough

White spots inside the mouth (Koplik spots)

Red skin rash that usually starts on the face and spreads downward

Modes of Transmission

Measles spreads through:

Airborne droplets

Direct contact with nasal or throat secretions

Sharing air space with an infected person

The virus can remain in the air for up to 2 hours after an infected person leaves an area.

Incubation Period

The incubation period is usually:

10–14 days after exposure.

Complications

Measles can lead to serious complications such as:

Pneumonia

Diarrhea

Ear infections

Blindness

Brain inflammation (encephalitis)

Death in severe cases

Children with poor nutrition or weak immunity are at higher risk.

Prevention

The main prevention method is:

Measles vaccine (MMR vaccine)

The MMR vaccine protects against:

Measles

Mumps

Rubella

Other preventive measures:

Isolation of infected persons

Good hygiene

Proper nutrition

Treatment

There is no specific antiviral cure for measles. Treatment mainly includes:

Rest

Plenty of fluids

Fever control

Vitamin A supplementation

Treatment of complications if they occur

Chickenpox (Varicella)

Chickenpox is a highly contagious viral disease caused by the Varicella-zoster virus (VZV). It mainly affects children but can also occur in adults.

Classification of Chickenpox

1. By Cause

Viral infectious disease

Caused by the Varicella-zoster virus, a member of the herpesvirus family.

2. By Mode of Transmission

Airborne disease — spreads through coughing and sneezing.

Contact-transmitted disease — spreads through contact with fluid from skin blisters.

3. By Duration

Acute disease

Usually develops suddenly and lasts about 1–2 weeks.

4. By Preventability

Vaccine-preventable disease

Prevented using the varicella vaccine.

5. By Severity

Mild to moderate illness in most children.

Can become severe in:

Adults

Pregnant women

Newborns

People with weak immune systems

Description of Chickenpox

Causative Organism

Varicella-zoster virus (VZV)

Incubation Period

Usually 10–21 days after exposure.

Signs and Symptoms

Common symptoms include:

Fever

Headache

Fatigue

Loss of appetite

Itchy red rash

Fluid-filled blisters that later crust over

The rash commonly:

Starts on the face, chest, or back

Spreads to the rest of the body

Changes from spots → blisters → scabs

Transmission

Chickenpox spreads through:

Air droplets from coughing/sneezing

Direct contact with blisters

Contact with contaminated objects occasionally

A person is contagious:

About 1–2 days before the rash appears

Until all blisters have crusted over

Complications

Possible complications include:

Skin infections

Pneumonia

Dehydration

Brain inflammation (encephalitis)

Scarring

Secondary bacterial infections

Diagnosis

Diagnosis is usually based on:

Appearance of the rash

Medical history

Laboratory tests in uncertain cases

Treatment

Treatment mainly focuses on relieving symptoms:

Rest

Adequate fluids

Calamine lotion for itching

Antihistamines

Paracetamol for fever

Avoid giving aspirin to children because it may cause Reye’s syndrome.
Antiviral drugs such as Acyclovir may be used in severe cases.
Prevention

Varicella vaccination

Isolation of infected persons

Good hygiene practices

The varicella vaccine greatly reduces the risk of infection and severe complications.

Classification of Polio

Polio, also called poliomyelitis, is an infectious disease caused by the Poliovirus.

Scientific Classification

Disease name: Poliomyelitis

Causative agent: Poliovirus

Virus family: Picornaviridae

Genus: Enterovirus

Types of Poliovirus

There are 3 serotypes:

Poliovirus Type 1

Poliovirus Type 2

Poliovirus Type 3

Type 1 is the most common cause of paralysis.

Description of Polio

Polio is a highly contagious viral disease that mainly affects children under 5 years old, although adults can also be infected.

The virus spreads mostly through:

Contaminated food or water

Poor sanitation

Contact with infected feces

Occasionally through saliva or respiratory droplets

After entering the body, the virus multiplies in the throat and intestines and may attack the nervous system.

Clinical Classification of Polio

1. Abortive Polio (Minor Illness)

This is the mildest form.

Symptoms

Fever

Sore throat

Headache

Vomiting

Fatigue

There is no paralysis, and recovery is usually complete.

2. Non-Paralytic Polio

The virus affects the nervous system but does not cause paralysis.

Symptoms

Neck stiffness

Back pain

Muscle pain

Sensitivity to light

Meningitis-like symptoms

Recovery usually occurs within days or weeks.

3. Paralytic Polio

This is the most severe form.

The virus destroys motor neurons in the spinal cord or brainstem, causing muscle weakness and paralysis.

Types of Paralytic Polio

a. Spinal Polio

Affects the spinal cord.

Symptoms:

Weak limbs

Loss of reflexes

Flaccid paralysis, usually in the legs

b. Bulbar Polio

Affects the brainstem.

Symptoms:

Difficulty swallowing

Breathing problems

Speech difficulty

This form can be life-threatening.

c. Bulbospinal Polio

Combination of spinal and bulbar forms.

Signs and Symptoms of Polio

Common symptoms include:

Fever

Fatigue

Muscle weakness

Headache

Stiff neck

Paralysis in severe cases

Complications

Polio may cause:

Permanent paralysis

Limb deformities

Breathing failure

Disability

Death in severe cases

Some survivors later develop Post-Polio Syndrome, causing new muscle weakness years after recovery.

Prevention

The best prevention is vaccination.

Polio Vaccines

Oral Polio Vaccine (OPV)

Inactivated Polio Vaccine (IPV)

Other preventive measures:

Good hygiene

Safe drinking water

Proper sanitation

Treatment

There is no cure for polio, but supportive care helps:

Physical therapy

Pain relief

Breathing support

Rehabilitation exercises

Vaccination campaigns have greatly reduced polio worldwide.

Ebola Virus Disease (EVD)

Classification of Ebola Virus Disease

Ebola Virus Disease is classified as a viral hemorrhagic fever caused by viruses in the Ebolavirus genus.

Scientific Classification

Domain: Riboviria

Order: Mononegavirales

Family: Filoviridae

Genus: Ebolavirus

Disease: Ebola Virus Disease (EVD)

Main Species of Ebola Virus

Zaire ebolavirus – most deadly and responsible for many major outbreaks.
Sudan ebolavirus

Bundibugyo ebolavirus

Taï Forest ebolavirus

Reston ebolavirus – mainly affects animals; not known to cause severe disease in humans.

Bombali ebolavirus

Description of Ebola Virus Disease

Ebola Virus Disease is a severe, highly contagious infectious disease that affects humans and some animals. It can cause bleeding, organ failure, shock, and death if untreated.

Cause

It is caused by infection with the Ebola virus, which is believed to originate from wild animals such as:

Fruit bats

Monkeys

Gorillas

Chimpanzees

Humans can become infected through contact with infected animals or body fluids from infected persons.

Modes of Transmission

Ebola spreads through direct contact with:

Blood

Vomit

Saliva

Sweat

Urine

Semen

Feces

Contaminated needles or surfaces

It is not usually spread through air like common cold viruses.

Signs and Symptoms

Symptoms usually begin 2–21 days after exposure.

Early Symptoms

Fever

Weakness

Headache

Muscle pain

Sore throat

Advanced Symptoms

Vomiting

Diarrhea

Rash

Internal and external bleeding

Organ failure

Pathogenesis (How It Affects the Body)

The virus attacks:

Immune cells

Blood vessels

Liver and other organs

This leads to:

Severe inflammation

Poor blood clotting

Fluid loss

Shock

Diagnosis

Doctors diagnose Ebola using:

PCR testing

Antigen tests

Blood tests

Samples must be handled carefully because the virus is highly dangerous.

Treatment

There is no simple cure, but treatment includes:

Intravenous fluids

Oxygen support

Electrolyte replacement

Treatment of secondary infections

Monoclonal antibody therapies

Early treatment greatly improves survival.

Prevention

Prevention methods include:

Avoiding contact with infected body fluids

Proper hand hygiene

Use of protective equipment

Safe burial practices

Isolation of infected patients

Vaccination in outbreak regions

One important vaccine is the Ervebo vaccine.

Public Health Importance

Ebola is important because it:

Causes outbreaks with high death rates

Can spread rapidly in healthcare settings

Requires strict infection control measures

A major outbreak occurred in West Africa from 2014–2016 and affected countries such as Guinea, Liberia, and Sierra Leone.

Rabies: Classification and Description

Classification of Rabies

Rabies is classified as:

Disease Type: Viral zoonotic disease

Cause: Rabies virus

Virus Family: Rhabdoviridae

Genus: Lyssavirus

Affected System: Central nervous system (brain and spinal cord)
Mode of Transmission: Usually through bites or saliva of infected animals
Rabies

Description of Rabies

Rabies is a serious and usually fatal infectious disease that attacks the nervous system of humans and animals. It is caused by the rabies virus, which spreads mainly through the saliva of infected animals such as dogs, bats, foxes, cats, and monkeys.

After a person is bitten or scratched by an infected animal, the virus travels through the nerves to the brain. Once symptoms appear, rabies is almost always deadly if treatment was not given early.

Signs and Symptoms

Early symptoms may include:

Fever

Headache

Weakness

Pain or tingling at the bite site

Later symptoms include:

Fear of water (hydrophobia)

Difficulty swallowing

Confusion

Hallucinations

Aggressive behavior

Paralysis

Coma

Transmission

Rabies spreads through:

Animal bites

Saliva entering broken skin or eyes/mouth

Rarely through organ transplantation

Common carrier animals:

Dogs

Bats

Foxes

Raccoons

Cats

Prevention

Rabies can be prevented by:

Vaccinating pets

Avoiding stray animals

Washing bite wounds immediately with soap and water

Receiving rabies vaccine after exposure

Treatment

Immediate wound cleaning

Rabies vaccination

Rabies immunoglobulin for severe exposures

Once symptoms begin, there is usually no effective cure.

Simple Summary

Rabies is a dangerous viral disease that affects the brain and nerves. It spreads mostly through infected animal bites and can be prevented through quick medical treatment and vaccination.

Dengue Fever Classification and Description

What is Dengue

Fever?

Dengue Fever is a viral infection spread mainly by the Aedes mosquito, especially Aedes aegypti. It is common in tropical and subtropical regions, including parts of Africa, Asia, and South America.

It is caused by four related viruses called DENV-1, DENV-2, DENV-3, and DENV-4. A person can be infected more than once because immunity to one type does not fully protect against the others.

Classification of Dengue Fever

1. Classical Dengue Fever (Mild Dengue)

This is the common form.

Features:

Sudden high fever

Severe headache

Pain behind the eyes

Muscle and joint pain (“breakbone fever”)

Skin rash

Nausea and vomiting

Fatigue

Description:

Usually lasts 2–7 days and most patients recover with rest and fluids.

2. Dengue Hemorrhagic Fever (DHF)

A more severe form involving bleeding and blood vessel leakage.

Features:

High fever

Bleeding gums or nose

Blood in vomit or stool

Easy bruising

Enlarged liver

Low platelet count

Description:

Blood vessels become damaged and leaky, causing fluid loss and bleeding problems. It can become life-threatening without treatment.

3. Dengue Shock Syndrome (DSS)

The most dangerous stage of dengue.

Features:

Very low blood pressure

Weak rapid pulse

Cold clammy skin

Severe abdominal pain

Difficulty breathing

Shock and organ failure

Description:

Occurs when severe plasma leakage leads to circulatory collapse. Emergency medical treatment is required.

WHO Modern Classification

The World Health Organization now commonly classifies dengue into:

A. Dengue Without Warning Signs

Fever with body pains and rash

Mild symptoms only

B. Dengue With Warning Signs

Warning signs include:

Persistent vomiting

Severe abdominal pain

Bleeding

Restlessness

Fluid accumulation

Enlarged liver

C. Severe Dengue

Includes:

Severe bleeding

Organ damage

Severe plasma leakage

Shock

Transmission

Dengue spreads through:

Bite of infected Aedes mosquitoes

Mosquitoes usually bite during daytime

It does not usually spread directly from person to person.

Diagnosis

Doctors may use:

Blood tests

NS1 antigen test

PCR test

Antibody tests (IgM/IgG)

Treatment

There is no specific antiviral cure.

Management includes:

Plenty of fluids

Rest

Paracetamol for fever

Monitoring platelet count

Avoid:

Aspirin

Ibuprofen because they may increase bleeding risk.

Prevention

Remove standing water

Use mosquito nets

Wear long sleeves

Use insect repellents

Community mosquito control programs

Complications

Severe dengue may lead to:

Internal bleeding

Liver damage

Heart complications

Shock

Death if untreated

Simple Summary Table

Classification

Severity

Main Features

Classical Dengue

Mild

Fever, headache, body pain

Dengue Hemorrhagic Fever

Moderate–Severe

Bleeding, low platelets

Dengue Shock Syndrome

Critical

Shock, organ failure

Severe Dengue

Critical

Severe bleeding and organ damage

Yellow Fever Classification

Yellow Fever is classified as:

Type of disease: Viral infectious disease

Category: Viral hemorrhagic fever

Causative agent: Yellow fever virus

Virus family: Flaviviridae

Virus genus: Flavivirus

Mode of transmission: Spread mainly by infected mosquitoes, especially Aedes aegypti
Reservoirs: Humans and some monkeys

Prevention type: Vaccine-preventable disease

Description of Yellow Fever

Yellow fever is a serious mosquito-borne viral disease found mainly in parts of Africa and South America. It is called “yellow” fever because severe cases can cause jaundice, where the skin and eyes turn yellow due to liver damage.

How It Spreads

A mosquito bites an infected person or monkey and then spreads the virus to another person through another bite. It is not usually spread directly from person to person.

Signs and Symptoms

Symptoms usually begin 3–6 days after infection.

Mild to Moderate Symptoms

Fever

Headache

Muscle pain

Back pain

Chills

Weakness

Nausea and vomiting

Loss of appetite

Severe Symptoms

Some people recover, but others enter a dangerous stage with:
High fever

Bleeding from nose, mouth, or stomach

Vomiting blood

Abdominal pain

Kidney failure

Liver damage and jaundice

Shock

Diagnosis

Doctors may diagnose yellow fever using:

Blood tests

PCR testing for the virus

Liver function tests

Treatment

There is no specific antiviral cure for yellow fever.
Treatment mainly supports the body:
Rest

Fluids

Fever control

Oxygen and hospital care in severe cases

Avoid medicines like aspirin unless prescribed, because they may increase bleeding risk.
Prevention

Vaccination

The Yellow fever vaccine is highly effective and can provide long-term protection.

Other Prevention Methods

Use mosquito nets

Wear long sleeves

Use insect repellents

Remove stagnant water around homes

Complications

Possible complications include:

Liver failure

Kidney failure

Brain inflammation

Severe bleeding

Death in severe untreated cases

Public Health Importance

Yellow fever remains an important disease in tropical regions and can cause outbreaks if vaccination rates are low. Many countries require proof of yellow fever vaccination for travelers entering from high-risk areas.

Human Papillomavirus (HPV)

Human papillomavirus infection is a very common viral infection caused by a group of related viruses called human papillomaviruses. It mainly affects the skin and moist body surfaces such as the mouth, throat, cervix, anus, and genitals.

There are over 200 types of HPV. Some types cause harmless skin warts, while others can lead to cancers.

Classification of HPV

HPV can be classified in several ways:

1. Classification by Risk Level

A. Low-Risk HPV Types

These usually cause warts and rarely lead to cancer.

Common low-risk types:

HPV 6

HPV 11

Conditions caused:

Genital warts

Skin warts

Respiratory papillomatosis (wart-like growths in airways)

B. High-Risk HPV Types

These can cause abnormal cell changes that may develop into cancer.

Common high-risk types:

HPV 16

HPV 18

HPV 31

HPV 33

HPV 45

Cancers associated with high-risk HPV:

Cervical cancer

Anal cancer

Penile cancer

Vulvar cancer

Vaginal cancer

Throat/oropharyngeal cancer

2. Classification by Site of Infection

A. Cutaneous HPV

Affects the skin.

Examples:

Common warts on hands

Plantar warts on feet

Flat warts

B. Mucosal HPV

Affects moist surfaces of the body.

Examples:

Genital infections

Oral infections

Cervical infections

3. Classification by Clinical Manifestation

A. Asymptomatic HPV

Most HPV infections show no symptoms and disappear naturally.

B. Wart-Producing HPV

Causes visible growths or warts.

C. Oncogenic HPV

Cancer-causing strains that produce precancerous lesions and malignancies.

Description of HPV

Cause

HPV is caused by infection with papillomavirus DNA viruses from the Papillomaviridae family.

Mode of Transmission

HPV spreads mainly through:

Sexual contact

Skin-to-skin contact

Oral sex

Rarely from mother to baby during birth

It is one of the most common sexually transmitted infections worldwide.

Signs and Symptoms

Many people have no symptoms.

Possible symptoms include:

Genital warts

Itching

Small flesh-colored bumps

Abnormal cervical screening results

Throat lesions in some cases

Pathophysiology

The virus infects epithelial cells of the skin or mucous membranes. High-risk HPV types can insert viral DNA into host cells, disrupting normal cell control and increasing risk of cancer development.

Diagnosis

Methods include:

HPV DNA test

Pap smear

Visual examination of warts

Biopsy

Prevention

HPV Vaccination

Vaccines help protect against major cancer-causing strains.
Examples:

Gardasil 9

Cervarix

Other Preventive Measures

Safe sexual practices

Regular cervical screening

Limiting multiple sexual partners

Treatment

There is no complete cure for the virus itself, but treatments manage symptoms and complications.

Treatment for Warts

Cryotherapy

Laser therapy

Surgical removal

Topical medications

Treatment for Precancerous Lesions

LEEP procedure

Surgery

Monitoring

Complications

Possible complications include:

Persistent genital warts

Cervical dysplasia

Cancer

Psychological distress

Prognosis

Most HPV infections clear naturally within 1–2 years due to immune response. Persistent infection with high-risk strains increases cancer risk.

Simple Summary Table

Classification

Description

Low-risk HPV

Causes warts, rarely cancer

High-risk HPV

Associated with cancers

Cutaneous HPV

Infects skin

Mucosal HPV

Infects moist body surfaces

Asymptomatic HPV

No visible symptoms

Oncogenic HPV

Cancer-causing HPV types

Bacterial infectious diseases

Tuberculosis (TB)

Tuberculosis is an infectious disease caused mainly by the bacterium Mycobacterium tuberculosis. It most commonly affects the lungs, but it can also affect other parts of the body such as the brain, bones, kidneys, and lymph nodes.

Classification of Tuberculosis

1. Based on Site of Infection

A. Pulmonary Tuberculosis (PTB)

TB that affects the lungs.

Features

Persistent cough lasting more than 2 weeks

Chest pain

Coughing up blood

Fever

Night sweats

Weight loss

This is the most common and most contagious form.

B. Extrapulmonary Tuberculosis (EPTB)

TB that occurs outside the lungs.

Types include:

Lymph node TB – swollen lymph nodes

Bone TB – affects spine or joints

TB meningitis – affects brain coverings

Renal TB – affects kidneys

Abdominal TB – affects intestines/peritoneum

Symptoms

Depend on the organ affected.

2. Based on Disease Activity

A. Latent Tuberculosis

The bacteria are present in the body but inactive.

Characteristics

No symptoms

Not contagious

Positive TB test possible

Can later become active TB

B. Active Tuberculosis

The bacteria multiply and cause illness.

Characteristics

Symptoms are present

Can spread to others

Requires immediate treatment

3. Based on Drug Response

A. Drug-Sensitive TB

Responds to standard anti-TB drugs.

Common drugs:

Isoniazid

Rifampicin

Ethambutol

Pyrazinamide

B. Drug-Resistant TB

i. Multidrug-Resistant TB (MDR-TB)

Resistant to at least:

Isoniazid

Rifampicin

ii. Extensively Drug-Resistant TB (XDR-TB)

More severe resistance involving additional drugs.

4. Based on Method of Transmission

A. Primary Tuberculosis

First infection with TB bacteria, common in children.

B. Secondary (Reactivation) Tuberculosis

Occurs when latent TB becomes active again, often in adults or immunocompromised individuals.

Causes of Tuberculosis

Caused by the bacterium:

Tuberculosis

Spread occurs through:

Coughing

Sneezing

Talking

Airborne droplets

Risk Factors

HIV/AIDS

Malnutrition

Diabetes

Smoking

Alcohol abuse

Weak immune system

Overcrowding

Diagnosis

Common tests include:

Sputum test

Chest X-ray

Tuberculin skin test

GeneXpert test

Blood tests

Treatment

TB is treated with antibiotics for several months.

Typical duration:

6 months or longer

Treatment adherence is very important to prevent drug resistance.

Prevention

BCG vaccination

Early diagnosis

Good ventilation

Wearing masks in high-risk settings

Completing treatment

Rifampicin

Cholera

Cholera is an acute infectious disease caused by the bacterium Vibrio cholerae. It mainly affects the small intestine and causes severe diarrhea and dehydration. Cholera spreads mostly through contaminated water or food and is common in areas with poor sanitation and unsafe drinking water.

Classification of Cholera

1. Based on Severity

A. Mild Cholera

Mild diarrhea

Slight dehydration

Weakness and fatigue

Usually manageable with oral rehydration

B. Moderate Cholera

Frequent watery stools

Vomiting

Increased dehydration

Muscle cramps

Requires medical attention

C. Severe Cholera

Profuse “rice-water” diarrhea

Severe dehydration

Sunken eyes

Low blood pressure

Shock and possible death if untreated

2. Based on Strain (Serogroup)

A. Vibrio cholerae O1

The most common strain responsible for major epidemics and pandemics.

Types:

Classical biotype

El Tor biotype

B. Vibrio cholerae O139

A less common strain capable of causing outbreaks.

Description of Cholera

Cholera is a waterborne bacterial disease that spreads rapidly in overcrowded environments with poor hygiene. The bacteria produce a toxin in the intestines, causing massive loss of water and electrolytes through diarrhea.

Without treatment, severe dehydration may occur within hours.

Causes of Cholera

Main cause:

Infection with Vibrio cholerae

Transmission occurs through:

Drinking contaminated water

Eating contaminated food

Poor sanitation

Poor hand hygiene

Common sources:

Contaminated rivers or wells

Raw seafood

Unwashed vegetables

Signs and Symptoms

Common Symptoms

Sudden watery diarrhea

Vomiting

Thirst

Weakness

Leg cramps

Severe Symptoms

Severe dehydration

Dry mouth

Rapid heartbeat

Sunken eyes

Low urine output

Shock

Diagnosis

Methods used include:

Stool culture

Rapid diagnostic tests

Microscopic examination

Clinical assessment of dehydration

Treatment

A. Rehydration Therapy

The most important treatment.

Oral Rehydration Solution (ORS)

Used for mild and moderate dehydration.

Intravenous Fluids

Used in severe cases.

B. Antibiotics

May shorten the illness duration.

Examples:

Doxycycline

Azithromycin

Ciprofloxacin

Azithromycin

Doxycycline

Prevention of Cholera

Drink clean and treated water

Wash hands regularly

Proper sewage disposal

Cook food thoroughly

Avoid contaminated food and water

Use oral cholera vaccines in high-risk areas

Complications

If untreated, cholera may lead to:

Severe dehydration

Kidney failure

Electrolyte imbalance

Shock

Death

Public Health Importance

Cholera outbreaks commonly occur during:

Floods

Wars

Refugee crises

Poor sanitation conditions

Rapid treatment and public health intervention greatly reduce mortality.

Typhoid Fever

Typhoid fever is a serious bacterial infectious disease caused by Salmonella enterica serotype Typhi (commonly called Salmonella Typhi). It mainly affects the intestines and bloodstream and spreads through contaminated food and water.

Classification of Typhoid Fever

1. Based on Cause

A. Typhoid Fever

Caused by:

Salmonella Typhi

This is the classic and more severe form.

B. Paratyphoid Fever

Caused by:

Salmonella Paratyphi A, B, or C

Usually milder than typhoid fever but produces similar symptoms.

2. Based on Severity

A. Mild Typhoid Fever

Low-grade fever

Weakness

Mild stomach discomfort

Reduced appetite

B. Moderate Typhoid Fever

Persistent high fever

Abdominal pain

Vomiting

Diarrhea or constipation

Fatigue

C. Severe Typhoid Fever

Intestinal bleeding

Intestinal perforation

Delirium

Severe dehydration

Shock

Can become life-threatening without treatment.

Description of Typhoid Fever

Typhoid fever is a systemic bacterial infection that commonly occurs in areas with:

Poor sanitation

Unsafe drinking water

Inadequate hygiene

The bacteria enter the body through contaminated food or water, multiply in the intestines, and spread into the bloodstream.

Causes

Main cause:

Infection with Salmonella Typhi

Transmission occurs through:

Contaminated food

Contaminated water

Poor hand hygiene

Contact with infected carriers

Common risk factors:

Poor sanitation

Open defecation

Overcrowding

Unsafe food handling

Signs and Symptoms

Early Symptoms

Fever

Weakness

Headache

Loss of appetite

Body pain

Advanced Symptoms

High persistent fever

Abdominal pain Diarrhea

or constipation Vomiting

Enlarged spleen

Rose-colored skin spots

Severe Complications

Intestinal perforation

Internal bleeding

Confusion or delirium

Septic shock

Diagnosis

Methods include:

Blood culture

Stool test

Widal test

Bone marrow culture

PCR testing

Treatment

A. Antibiotics

Used to kill the bacteria.

Common drugs:

Ciprofloxacin

Azithromycin Ceftriaxone

B. Supportive Care

Adequate hydration

Proper nutrition

Rest

Ciprofloxacin

Ceftriaxone

Prevention

Drink clean water

Wash hands regularly

Proper sewage disposal

Cook food thoroughly

Avoid contaminated food and drinks

Typhoid vaccination

Public Health Importance

Typhoid fever remains common in many developing regions due to poor sanitation and limited access to clean water. Early diagnosis and treatment greatly reduce complications and death.

Pneumonia (Bacterial Type)

Pneumonia is an infectious disease in which the air sacs (alveoli) of the lungs become inflamed and filled with fluid or pus. Bacterial pneumonia is caused by bacteria and mainly affects the respiratory system.

The most common bacterial cause is Streptococcus pneumoniae.

Classification of Bacterial Pneumonia

1. Based on Place of Acquisition

A. Community-Acquired Pneumonia (CAP)

Occurs outside hospitals or healthcare facilities.

Common Causes

Streptococcus pneumoniae

Haemophilus influenzae

Symptoms

Fever

Chest pain

Cough with sputum

Difficulty breathing

B. Hospital-Acquired Pneumonia (HAP)

Develops 48 hours or more after hospital admission.

Features

Often more severe

May involve antibiotic-resistant bacteria

C. Ventilator-Associated Pneumonia (VAP)

Occurs in patients using mechanical ventilators.

D. Aspiration Pneumonia

Caused by inhaling food, vomit, or liquids into the lungs.

Common in:

Stroke patients

Elderly individuals

Unconscious patients

2. Based on Anatomical Distribution

A. Lobar Pneumonia

Affects an entire lobe of the lung.

B. Bronchopneumonia

Patchy infection involving bronchi and surrounding lung tissue.

C. Interstitial Pneumonia

Affects tissue surrounding the air sacs.

Causes of Bacterial Pneumonia

Common bacteria include:

Streptococcus pneumoniae

Staphylococcus aureus

Klebsiella pneumoniae

Haemophilus influenzae

Risk factors:

Smoking

Weak immune system

Old age

Chronic lung disease

Malnutrition

Signs and Symptoms

Common Symptoms

Fever

Chills

Productive cough

Chest pain

Shortness of breath

Fatigue

Severe Symptoms

Bluish lips

Rapid breathing

Confusion

Low oxygen levels

Diagnosis

Methods include:

Physical examination

Chest X-ray

Sputum culture

Blood tests

Pulse oximetry

Treatment Antibiotics

Used to kill bacteria.

Examples:

Amoxicillin

Azithromycin

Ceftriaxone

Amoxicillin

Ceftriaxone

Supportive Care

Rest

Fluids

Oxygen therapy

Fever control

Prevention

Pneumococcal vaccination

Good hygiene

Avoid smoking

Proper nutrition

Early treatment of respiratory infections

Complications

Untreated pneumonia may lead to:

Respiratory failure

Lung abscess

Sepsis

Pleural effusion

Death

Public Health Importance

Bacterial pneumonia is a major cause of illness and death worldwide, especially among:
Children

Elderly people

Immunocompromised individuals

Early diagnosis and proper antibiotic treatment

greatly improve recovery.

Meningitis

Meningitis is a serious medical condition involving inflammation of the meninges, which are the protective membranes surrounding the brain and spinal cord. It can be caused by bacteria, viruses, fungi, or parasites.

Meningitis may develop rapidly and can become life-threatening if not treated early.

Classification of Meningitis

1. Bacterial Meningitis

Caused by bacteria.

Common Causative Bacteria

Neisseria meningitidis

Streptococcus pneumoniae

Haemophilus influenzae

Description

This is the most severe type of meningitis and requires urgent medical treatment.

Symptoms

High fever

Severe headache

Neck stiffness

Vomiting

Sensitivity to light

Confusion

Seizures

Transmission

Spread through respiratory droplets, coughing, sneezing, or close contact.

Treatment

Intravenous antibiotics

Fluids

Corticosteroids

2. Viral Meningitis

Caused by viruses.

Common Viruses

Enteroviruses

Herpes simplex virus

Mumps virus

Description

Usually less severe than bacterial meningitis and may improve without specific treatment.
Symptoms

Fever

Headache

Fatigue

Mild neck stiffness

Treatment

Rest

Fluids

Pain relievers

Antiviral drugs in some cases

3. Fungal Meningitis

Caused by fungi.

Common Fungi

Cryptococcus

Histoplasma

Description

Rare but serious, especially in people with weak immune systems.

Symptoms

Headache

Fever

Nausea

Confusion

Treatment

Antifungal medications

4. Parasitic Meningitis

Caused by parasites.

Examples

Amoebic meningitis

Eosinophilic meningitis

Description

Rare and often severe.

Sources

Contaminated water

Undercooked food

Environmental exposure

5. Non-Infectious Meningitis

Not caused by microorganisms.

Causes

Cancer

Lupus

Certain drugs

Head injury

Description of Meningitis

Meningitis causes swelling of the meninges, leading to pressure on the brain and spinal cord. Severe cases may result in:

Brain damage

Hearing loss

Learning disabilities

Death

Children, infants, elderly people, and individuals with weak immune systems are at higher risk.

Diagnosis

Common diagnostic methods include:

Lumbar puncture (spinal tap)

Cerebrospinal fluid analysis

Blood tests

CT scan or MRI

Prevention

Vaccination

Good hygiene

Avoiding close contact with infected persons

Early treatment of infections

Vaccines are available for some forms of bacterial meningitis.

Common Vaccines

Meningococcal vaccine

Pneumococcal vaccine

Complications

Untreated meningitis may lead to:

Seizures

Brain swelling

Hearing loss

Memory problems

Paralysis

Death

Early diagnosis and treatment greatly improve survival and recovery.

Gonorrhea

Gonorrhea is a sexually transmitted infectious disease caused by the bacterium Neisseria gonorrhoeae. It mainly affects the reproductive tract but can also infect the throat, rectum, eyes, and joints.

Gonorrhea spreads through:

Unprotected sexual contact

Vaginal, anal, or oral sex

From mother to baby during childbirth

Classification of Gonorrhea

1. Based on Site of Infection

A. Genital Gonorrhea

Affects the reproductive organs.

In males:

Urethral discharge

Painful urination

In females:

Vaginal discharge

Pelvic pain

Bleeding between periods

B. Rectal Gonorrhea

Affects the rectum.

Symptoms:

Rectal pain

Discharge

Itching

Bleeding

C. Pharyngeal Gonorrhea

Affects the throat.

Symptoms:

Sore throat

Difficulty swallowing

Sometimes no symptoms

D. Ocular Gonorrhea

Affects the eyes.

Symptoms:

Eye redness

Swelling

Pus discharge

Can lead to blindness if untreated.

E. Disseminated Gonococcal Infection (DGI)

A severe form where bacteria spread through the bloodstream.

Symptoms:

Fever

Joint pain

Skin rashes

Arthritis

Description of Gonorrhea

Gonorrhea is one of the most common sexually transmitted infections (STIs). Many infected individuals may have no symptoms, especially women, which increases the risk of spreading the infection unknowingly.

If untreated, gonorrhea may cause:

Infertility

Pelvic inflammatory disease (PID)

Ectopic pregnancy

Chronic pelvic pain

Infection of newborn babies

Causes

Main causative organism:

Neisseria gonorrhoeae

Risk factors include:

Multiple sexual partners

Unprotected sex

Previous STIs

Poor sexual health awareness

Signs and Symptoms

In Men

Burning urination

White, yellow, or green penile discharge

Swollen testicles

In Women

Vaginal discharge

Pain during urination

Pelvic pain

Abnormal vaginal bleeding

General Symptoms

Sore throat

Rectal discomfort

Eye infection

Diagnosis

Methods include:

Urine test

Swab samples

Laboratory culture

Nucleic acid amplification tests (NAATs)

Treatment

Gonorrhea is treated with antibiotics.

Common treatment:

Ceftriaxone injection

Sometimes combined with azithromycin or doxycycline
Ceftriaxone

Azithromycin

Drug-resistant gonorrhea is becoming a global health concern.
Prevention

Use condoms correctly

Avoid multiple sexual partners

Regular STI screening

Early treatment

Sexual health education

Complications

Untreated gonorrhea may lead to:

Infertility

Pelvic inflammatory disease

Epididymitis

Bloodstream infection

Increased HIV transmission risk

Syphilis

Syphilis is a sexually transmitted infectious disease caused by the bacterium Treponema pallidum. It spreads mainly through sexual contact, but it can also pass from a pregnant mother to her baby during pregnancy or childbirth.

If untreated, syphilis progresses through several stages and may damage the brain, heart, nerves, eyes, and other organs.

Classification of Syphilis

Syphilis is classified into stages based on disease progression.

1. Primary Syphilis

This is the first stage of infection.

Characteristics

Appearance of a painless sore called a chancre

Usually occurs on:

Genitals

Mouth

Anus

Swollen lymph nodes may occur

The sore heals on its own within weeks, but the infection remains in the body.

2. Secondary Syphilis

Occurs weeks to months after the primary stage.

Characteristics

Skin rash (often on palms and soles)

Fever

Sore throat

Fatigue

Swollen lymph nodes

Hair loss

Mouth sores

This stage is highly infectious.

3. Latent Syphilis

A hidden stage with no visible symptoms.

Types

A. Early Latent Syphilis

Infection acquired within the past year

B. Late Latent Syphilis

Infection present for more than one year

The bacteria remain in the body despite absence of symptoms.

4. Tertiary Syphilis

The late and most severe stage.

Complications

Brain damage

Heart disease

Blindness

Paralysis

Nervous system damage

This stage may occur years after initial infection.

5. Congenital Syphilis

Occurs when an infected pregnant woman transmits syphilis to her baby.

Effects

Miscarriage

Stillbirth

Deformities

Blindness

Deafness

Severe infection in newborns

Cause of Syphilis

Main causative organism:

Treponema pallidum

Transmission

Syphilis spreads through:

Sexual contact

Contact with syphilitic sores

Mother-to-child transmission during pregnancy

It does not usually spread through casual contact like hugging or sharing utensils.

Signs and Symptoms

Symptoms depend on the stage.

Common Symptoms

Genital sores

Skin rash

Fever

Fatigue

Swollen lymph nodes

Severe Symptoms

Neurological problems

Heart complications

Vision problems

Diagnosis

Methods include:

Blood tests

Microscopic examination

Physical examination

Screening during pregnancy

Treatment

Syphilis is usually treated with antibiotics.

Main Treatment

Penicillin injection

Other antibiotics may be used if allergic to penicillin.

Penicillin

Early treatment prevents complications.

Prevention

Safe sexual practices

Condom use

Regular STI testing

Early treatment

Screening during pregnancy

Complications of Untreated Syphilis

Brain damage

Blindness

Heart disease

Infertility

Death in severe cases

Early diagnosis and treatment greatly improve outcomes.

Diphtheria

Diphtheria is a serious bacterial infectious disease caused by the bacterium Corynebacterium diphtheriae. It mainly affects the throat and upper respiratory tract, but it can also affect the skin and other organs.

The disease produces a dangerous toxin that damages body tissues and may lead to severe complications.

Classification of Diphtheria

1. Respiratory Diphtheria

The most common and dangerous form.

Affects:

Throat

Tonsils

Nose

Larynx

Characteristics:

Thick gray membrane in the throat

Difficulty breathing

Fever

Swollen neck (“bull neck” appearance)

2. Cutaneous Diphtheria

Affects the skin.

Features:

Skin ulcers

Redness

Swelling

Non-healing sores

More common in tropical and overcrowded areas.

Description of Diphtheria

Diphtheria is a highly contagious disease spread through:

Coughing

Sneezing

Direct contact

Contaminated objects

The bacteria release a toxin that forms a thick coating in the throat, making breathing and swallowing difficult.

Without treatment, the toxin may spread to the:

Heart

Kidneys

Nervous system

Causes

Main cause:

Infection by Corynebacterium diphtheriae

Risk factors include:

Lack of vaccination

Poor hygiene

Overcrowding

Weak immune system

Signs and Symptoms

Early Symptoms

Sore throat

Fever

Weakness

Runny nose

Advanced Symptoms

Thick gray membrane in throat

Swollen neck

Difficulty swallowing

Difficulty breathing

Hoarseness

Diagnosis

Methods include:

Throat swab culture

Laboratory toxin testing

Physical examination

Treatment

A. Diphtheria Antitoxin

Neutralizes the toxin.

B. Antibiotics

Used to kill the bacteria.

Common antibiotics:

Penicillin

Erythromycin

Penicillin

Erythromycin

Prevention

Vaccination

The best prevention method.

Vaccines include:

DPT vaccine

DTaP vaccine

Other preventive measures:

Good hygiene

Early treatment

Isolation of infected individuals

Complications

If untreated, diphtheria may cause:

Airway blockage

Heart inflammation (myocarditis)

Paralysis

Respiratory failure

Death

Public Health Importance

Diphtheria outbreaks occur mainly in areas with:

Low vaccination rates

Poor healthcare access

Crowded living conditions

Immunization programs have greatly reduced the disease worldwide.

Leprosy (Hansen’s Disease)

Leprosy, also called Hansen’s disease, is a chronic infectious disease caused by the bacterium Mycobacterium leprae. It mainly affects:

The skin

Peripheral nerves

Eyes

Nasal lining

If untreated, it may lead to nerve damage, deformities, and disability.

Classification of Leprosy

Leprosy is classified mainly according to the body’s immune response and the severity of the disease.

1. Ridley–Jopling Classification

A. Tuberculoid Leprosy (TT)

Mildest form with strong immune response.

Characteristics

Few skin lesions

Dry, pale patches

Loss of sensation

Nerve enlargement

Less contagious

B. Borderline Tuberculoid Leprosy (BT)

Intermediate form closer to tuberculoid type.

Characteristics

More lesions than TT

Partial nerve involvement

Mild sensory loss

C. Mid-Borderline Leprosy (BB)

Unstable intermediate form.

Characteristics

Numerous skin lesions

Irregular plaques

Moderate nerve damage

D. Borderline Lepromatous Leprosy (BL)

Closer to severe lepromatous type.

Characteristics

Many lesions

Nodules and plaques

Greater bacterial load

More contagious

E. Lepromatous Leprosy (LL)

Most severe form with weak immune response.

Characteristics

Widespread skin lesions

Thickened skin

Facial deformities

Severe nerve damage

Loss of eyebrows

High infectivity

2. WHO Classification

The World Health Organization classifies leprosy into:

A. Paucibacillary Leprosy (PB)

1–5 skin lesions

Few bacteria present

Less severe

B. Multibacillary Leprosy (MB)

More than 5 lesions

Large number of bacteria

More severe and infectious

Cause of Leprosy

Leprosy is caused by:

Mycobacterium leprae

Transmission occurs mainly through:

Prolonged close contact

Respiratory droplets from untreated patients

It spreads slowly and is not highly contagious.

Signs and Symptoms

Skin Symptoms

Pale or reddish patches

Numbness

Thickened skin

Nodules

Nerve Symptoms

Loss of sensation

Muscle weakness

Tingling

Paralysis in severe cases

Eye Problems

Dry eyes

Vision loss

Diagnosis

Methods include:

Skin examination

Skin biopsy

Nerve examination

Skin smear tests

Treatment

Leprosy is curable with multidrug therapy (MDT).

Common medications:

Rifampicin

Dapsone

Clofazimine

Treatment duration:

6 months to 12 months or longer

Dapsone

Clofazimine

Prevention

Early diagnosis

Prompt treatment

Avoid prolonged close contact with untreated cases

Community health education

Complications

Untreated leprosy may cause:

Permanent nerve damage

Hand and foot deformities

Blindness

Disability

Social stigma

Important Facts

Leprosy is curable.

Early treatment prevents disability.

Most people naturally have immunity against the disease.

Whooping Cough (Pertussis)

Pertussis is a highly contagious respiratory disease caused by the bacterium Bordetella pertussis. It mainly affects the airways and lungs and is especially dangerous in infants and young children.

The disease is called “whooping cough” because infected individuals often make a loud “whoop” sound while trying to breathe after severe coughing spells.

Classification of Whooping Cough (Pertussis)

1. Based on Cause

Bacterial Infectious Disease

Pertussis is classified as a:

Bacterial disease

Respiratory tract infection

Communicable disease

It spreads from person to person through respiratory droplets released during coughing or sneezing.

Stages (Clinical Classification) of Pertussis

A. Catarrhal Stage

Early stage lasting about 1–2 weeks.

Symptoms

Runny nose

Mild fever

Sneezing

Mild cough

Fatigue

This stage resembles a common cold but is highly contagious.

B. Paroxysmal Stage

Most severe stage lasting several weeks.

Symptoms

Violent coughing attacks

“Whooping” sound during breathing

Vomiting after coughing

Difficulty breathing

Exhaustion after coughing fits

C. Convalescent Stage

Recovery stage.

Features

Gradual reduction in coughing

Improved breathing

Weakness may persist for weeks

Description of Pertussis

Pertussis affects the lining of the respiratory tract. The bacteria produce toxins that irritate the airways and lead to severe coughing fits.

Infants may develop life-threatening complications because their airways are small and their immune systems are immature.

Causes

Main cause:

Infection with Bordetella pertussis

Spread occurs through:

Coughing

Sneezing

Close contact with infected persons

Risk Factors

Lack of vaccination

Weak immune system

Exposure to infected individuals

Infants under one year

Crowded living conditions

Signs and Symptoms

Common Symptoms

Persistent cough

Fever

Runny nose

Sneezing

Severe Symptoms

Violent coughing fits

Vomiting after coughing

Blue lips from lack of oxygen

Breathing pauses in infants

Diagnosis

Methods include:

Nasal or throat swab

Culture test

PCR testing

Blood tests

Clinical examination

Treatment

Antibiotics

Used to reduce spread and severity.

Common antibiotics:

Azithromycin

Erythromycin

Clarithromycin

Azithromycin

Erythromycin

Prevention

Vaccination

The best prevention method.

Vaccines include:

DTaP vaccine for children

Tdap booster for adolescents and adults

Other preventive measures:

Good hygiene

Covering coughs

Isolation of infected individuals

Complications

Possible complications include:

Pneumonia

Seizures

Brain damage

Weight loss

Death in severe infant cases

Public Health Importance

Pertussis remains a major health concern worldwide despite vaccination programs. Outbreaks occur especially where vaccination coverage is low. Early diagnosis and immunization are essential for disease control.

Tetanus

Tetanus is a serious bacterial infectious disease caused by the bacterium Clostridium tetani. The bacteria produce a toxin that attacks the nervous system, causing painful muscle stiffness and spasms.

Tetanus is commonly called “lockjaw” because it often causes tightening of the jaw muscles.

Classification of Tetanus

1. Generalized Tetanus

The most common type.

Features

Muscle stiffness throughout the body

Lockjaw

Difficulty swallowing

Severe muscle spasms

Back arching

This form can become life-threatening.

2. Localized Tetanus

Affects muscles near the site of injury.

Features

Muscle rigidity in one area

Mild spasms

May progress to generalized tetanus

3. Cephalic Tetanus

A rare form affecting the head and face.

Features

Facial muscle weakness

Cranial nerve involvement

Difficulty speaking or swallowing

Usually follows head injuries or ear infections.

4. Neonatal Tetanus

Occurs in newborn babies.

Causes

Poor umbilical cord hygiene

Unsterile delivery practices

Features

Inability to suck breast milk

Body stiffness

Convulsions

This type has high mortality if untreated.

Description of Tetanus

Tetanus occurs when Clostridium tetani spores enter the body through cuts, wounds, burns, punctures, or contaminated objects such as rusty nails.

The bacteria release a toxin called tetanospasmin, which affects the nervous system and causes uncontrolled muscle contractions.

Causes and Transmission

Common sources include:

Dirty wounds

Animal bites

Burns

Puncture injuries

Unsterile injections

Contaminated surgical instruments

Tetanus does not spread from person to person.

Signs and Symptoms

Early Symptoms

Jaw stiffness

Headache

Irritability

Difficulty swallowing

Severe Symptoms

Painful muscle spasms

Rigid abdomen

Breathing difficulty

Fever

Sweating

Seizures

Diagnosis

Diagnosis is mainly clinical and based on:

Symptoms

Medical history

Presence of wounds

Laboratory tests are less useful for confirmation.

Treatment

1. Wound Care

Cleaning and removing dead tissue.

2. Medications

Antibiotics

Muscle relaxants

Tetanus immune globulin (TIG)

3. Supportive Care

Oxygen therapy

Ventilator support in severe cases

Metronidazole

Tetanus immune globulin

Prevention

The best prevention is vaccination.

Tetanus Vaccine

Usually given as:

DTaP vaccine

Td booster

Tdap vaccine

Booster doses are recommended every 10 years.

Other preventive measures:

Proper wound cleaning

Sterile delivery practices

Safe injections

Complications

Untreated tetanus may cause:

Respiratory failure

Bone fractures from spasms

Pneumonia

Heart rhythm problems

Death

Public Health Importance

Tetanus remains a major health concern in areas with:
Low vaccination coverage

Poor sanitation

Limited healthcare access

Vaccination programs have greatly reduced tetanus

cases worldwide.

Ringworm

Ringworm is a contagious fungal infection of the skin caused by a group of fungi called dermatophytes. Despite its name, ringworm is not caused by a worm. It is called ringworm because the infection often forms a circular, ring-like rash on the skin.

Ringworm can affect the skin, scalp, nails, feet, groin, and beard area.

Classification of Ringworm

Ringworm is classified according to the part of the body affected.

1. Tinea Corporis

Ringworm of the body.

Features

Circular red rash

Itching

Raised edges

Scaly skin

2. Tinea Capitis

Ringworm of the scalp.

Features

Scalp itching

Hair loss patches

Scaly scalp

Common in children

3. Tinea Pedis (Athlete’s Foot)

Ringworm of the feet.

Features

Cracked skin between toes

Burning sensation

Foot itching

Peeling skin

4. Tinea Cruris (Jock Itch)

Ringworm affecting the groin area.

Features

Red itchy rash

Burning sensation

Common in sweaty areas

5. Tinea Unguium (Onychomycosis)

Fungal infection of the nails.

Features

Thick nails

Brittle nails

Nail discoloration

6. Tinea Barbae

Ringworm of the beard area.

Features

Facial rash

Swelling

Hair loss in beard region

Causes of Ringworm

Ringworm is caused by fungi such as:

Trichophyton

Microsporum

Epidermophyton

The infection spreads through:

Direct skin contact

Sharing towels or clothes

Contact with infected animals

Contaminated surfaces

Signs and Symptoms

Common symptoms include:

Itching

Circular rash

Dry scaly skin

Redness

Hair loss in affected areas

Cracked skin

Diagnosis

Diagnosis may involve:

Physical examination

Skin scraping

Fungal culture

Wood’s lamp examination

Treatment

Antifungal Creams

Used for mild infections.

Examples:

Clotrimazole

Terbinafine

Miconazole

Oral Antifungal Drugs

Used for severe or scalp infections.

Examples:

Griseofulvin

Fluconazole

Clotrimazole

Terbinafine

Prevention

Keep skin dry and clean

Avoid sharing personal items

Wear clean clothes

Treat infected pets

Use footwear in public bathrooms

Complications

If untreated, ringworm may lead to:

Secondary bacterial infection

Permanent hair loss (rare)

Spread to other body parts

Nail destruction

Public Health Importance

Ringworm is common in:

Schools

Sports environments

Overcrowded communities

Humid climates

Early treatment helps prevent spread to others.

Athlete’s Foot

Athlete’s Foot

Athlete's foot

Athlete’s foot is a contagious fungal infection that affects the skin of the feet, especially between the toes. Its medical name is Tinea pedis. It is caused mainly by fungi called dermatophytes, which grow well in warm and moist environments.

Classification of Athlete’s Foot

1. Interdigital Type

The most common form.

Description

Occurs between the toes, especially the 4th and 5th toes
Causes:

Itching

Peeling skin

Cracking

Bad odor

2. Moccasin Type

A chronic dry form affecting the sole and sides of the foot.

Description

Thick dry skin

Scaling

Redness

Cracked heels

May spread to toenails

The foot may appear as if wearing a “moccasin.”

3. Vesicular Type

Characterized by fluid-filled blisters.

Description

Painful blisters

Burning sensation

Inflammation

Sudden outbreaks

Usually affects the arch or sole of the foot.

4. Ulcerative Type

A severe and less common form.

Description

Open sores or ulcers

Secondary bacterial infection

Pain and swelling

Common in people with diabetes or weak immunity

Cause of Athlete’s Foot

Main causes:

Dermatophyte fungi such as:

Trichophyton rubrum

Trichophyton mentagrophytes

Risk Factors

Sweaty feet

Wearing tight shoes

Walking barefoot in public bathrooms

Poor foot hygiene

Sharing towels or footwear

Weak immune system

Symptoms

Common symptoms include:

Itching

Burning sensation

Redness

Cracked skin

Peeling skin

Foot odor

Blisters

Transmission

Athlete’s foot spreads through:

Direct skin contact

Contaminated floors

Shared footwear

Towels and socks

Diagnosis

Methods include:

Physical examination

Skin scraping

Microscopic examination

Fungal culture

Treatment

Antifungal Medications

Examples:

Clotrimazole

Terbinafine

Miconazole

Clotrimazole

Terbinafine

Prevention

Keep feet dry

Change socks regularly

Wear breathable shoes

Avoid walking barefoot in public places

Do not share footwear

Practice good foot hygiene

Complications

If untreated, athlete’s foot may lead to:

Nail fungal infection

Secondary bacterial infection

Spread to hands or groin

Chronic skin damage

Candidiasis (Yeast Infection)

Candidiasis is a fungal infectious disease caused mainly by Candida albicans, a type of yeast that normally lives on the skin, mouth, intestines, and genital areas. When the fungus grows excessively, it causes infection known as candidiasis.

Classification of Candidiasis

1. Oral Candidiasis (Oral Thrush)

A fungal infection affecting the mouth and tongue.

Features

White patches in the mouth

Redness and soreness

Difficulty swallowing

Cracked corners of the mouth

Common in:

Infants

Elderly people

HIV/AIDS patients

People using antibiotics

2. Vaginal Candidiasis

A yeast infection affecting the vagina.

Symptoms

Intense itching

Thick white discharge

Burning sensation

Pain during urination

Risk factors:

Pregnancy

Diabetes

Antibiotic use

Weak immune system

3. Cutaneous Candidiasis

Affects the skin folds and moist areas of the body.

Common Areas

Armpits

Groin

Under breasts

Between fingers

Symptoms

Red rash

Itching

Skin irritation

Peeling skin

4. Esophageal Candidiasis

A fungal infection of the esophagus.

Symptoms

Painful swallowing

Chest pain

Difficulty eating

Often seen in immunocompromised individuals.

5. Invasive/Systemic Candidiasis

A severe form where Candida enters the bloodstream or internal organs.

Affected Organs

Blood

Heart

Brain

Kidneys

Symptoms

Fever

Chills

Organ dysfunction

Severe illness

This form can become life-threatening.

Causes of Candidiasis

Main cause:

Overgrowth of Candida yeast

Contributing factors:

Weak immune system

Poor hygiene

Diabetes

HIV/AIDS

Long-term antibiotic use

Steroid medications

Transmission

Candidiasis is usually caused by overgrowth of normal body yeast rather than direct infection from another person. However, some forms may spread through close contact.

Diagnosis

Methods include:

Physical examination

Microscopic examination

Swab culture

Blood tests (for invasive candidiasis)

Treatment

Antifungal Medications

Common drugs:

Fluconazole

Nystatin

Clotrimazole

Miconazole

Fluconazole

Nystatin

Prevention

Maintain good hygiene

Keep skin dry

Control blood sugar

Avoid unnecessary antibiotic use

Wear loose cotton clothing

Strengthen immunity

Complications

If untreated, candidiasis may lead to:

Recurrent infections

Severe discomfort

Spread to internal organs

Bloodstream infection in severe cases

Public Health Importance

Candidiasis is one of the most common fungal infections worldwide. It especially affects individuals with weakened immunity and hospitalized patients. Early diagnosis and proper antifungal treatment help prevent complications.

Aspergillosis

Aspergillosis is a fungal infectious disease caused by fungi of the genus Aspergillus, especially Aspergillus fumigatus. These fungi are commonly found in soil, dust, compost, decaying plants, and indoor environments.

The disease mainly affects the lungs, but severe forms may spread to other organs, especially in people with weak immune systems.

Classification of Aspergillosis

1. Allergic Aspergillosis

Allergic Bronchopulmonary Aspergillosis (ABPA)

Occurs mainly in people with:

Asthma

Cystic fibrosis

Features

Wheezing

Cough

Shortness of breath

Thick mucus production

Fever in some cases

The immune system overreacts to the fungus rather than the fungus invading tissues.

2. Chronic Pulmonary Aspergillosis (CPA)

A long-term lung infection usually affecting people with previous lung diseases such as:

Tuberculosis

COPD

Sarcoidosis

Symptoms

Chronic cough

Weight loss

Fatigue

Chest pain

Coughing blood

It may form fungal balls called aspergillomas inside lung cavities.

3. Aspergilloma (Fungal Ball)

A mass of fungal fibers growing in pre-existing lung cavities.

Common Causes of Lung Cavities

Previous tuberculosis

Lung abscess

Emphysema

Symptoms

Coughing blood

Persistent cough

Breathing difficulty

4. Invasive Aspergillosis

The most severe type.

Occurs mainly in people with:

HIV/AIDS

Cancer

Organ transplants

Chemotherapy

Severe immune suppression

Features

The fungus invades:

Lungs

Blood vessels

Brain

Heart

Kidneys

Symptoms

Fever

Chest pain

Severe cough

Shortness of breath

Organ failure in severe cases

This form can become life-threatening.

Causes of Aspergillosis

Main cause:

Inhalation of Aspergillus spores

Risk factors:

Weak immune system

Long-term steroid use

Chronic lung disease

Hospitalization

Chemotherapy

Diagnosis

Methods include:

Chest X-ray

CT scan

Sputum culture

Blood tests

Bronchoscopy

Biopsy

Treatment

Antifungal Drugs

Common medications:

Voriconazole

Itraconazole

Amphotericin B

Voriconazole

Itraconazole

Surgery

May be required to remove:

Aspergilloma

Damaged lung tissue

Prevention

Avoid moldy environments

Use protective masks in dusty areas

Maintain clean ventilation systems

Protect immunocompromised patients from fungal exposure

Complications

Untreated aspergillosis may cause:

Lung bleeding

Respiratory failure

Spread to organs

Permanent lung damage

Death in invasive disease

Histoplasmosis

Histoplasmosis is a fungal infectious disease caused by the fungus Histoplasma capsulatum. The infection mainly affects the lungs but may spread to other organs in severe cases.

The fungus is commonly found in:

Soil contaminated with bird droppings

Bat droppings

Caves

Poultry farms

People become infected by inhaling fungal spores from contaminated air.

Classification of Histoplasmosis

1. Acute Pulmonary Histoplasmosis

A short-term lung infection occurring after inhalation of fungal spores.

Features

Fever

Dry cough

Chest pain

Fatigue

Headache

Usually mild and may resolve without treatment.

2. Chronic Pulmonary Histoplasmosis

A long-lasting lung infection, mostly affecting people with existing lung disease.

Features

Persistent cough

Weight loss

Night sweats

Bloody sputum

Breathing difficulty

May resemble tuberculosis.

3. Disseminated Histoplasmosis

The most severe form where the fungus spreads beyond the lungs to other organs.

Affected Organs

Liver

Spleen

Bone marrow

Brain

Adrenal glands

Symptoms

High fever

Severe weakness

Enlarged lymph nodes

Organ failure

Common in people with weak immune systems such as HIV/AIDS patients.

Description of Histoplasmosis

Histoplasmosis is classified as a:

Fungal Infectious Disease

Because it is caused by a fungus.

It is also considered an:

Opportunistic Infection

Because severe disease commonly occurs in immunocompromised individuals.

Causes

Main causative organism:

Histoplasma capsulatum

Transmission occurs through:

Inhalation of airborne fungal spores

It is not usually spread from person to person.

Risk Factors

People at higher risk include:

Farmers

Cave explorers

Poultry workers

Construction workers

HIV/AIDS patients

Organ transplant recipients

Diagnosis

Methods include:

Chest X-ray

CT scan

Fungal culture

Blood tests

Urine antigen tests

Biopsy

Treatment

Mild cases may recover without treatment.

Severe infections are treated with antifungal drugs such as:
Itraconazole

Amphotericin B

Itraconazole

Amphotericin B

Prevention

Avoid exposure to contaminated dust

Use protective masks in caves or poultry farms

Proper sanitation

Reduce exposure to bird and bat droppings

Complications

Untreated severe histoplasmosis may cause:

Respiratory failure

Organ damage

Chronic lung disease

Death

Early diagnosis and treatment greatly improve survival.

Cryptococcosis

Cryptococcosis is a serious fungal infectious disease caused mainly by the fungi Cryptococcus neoformans and Cryptococcus gattii. It commonly affects the lungs and central nervous system, especially in people with weakened immune systems.

Classification of Cryptococcosis

1. Based on Site of Infection

A. Pulmonary Cryptococcosis

Affects the lungs.

Features

Cough

Chest pain

Fever

Shortness of breath

Sometimes no symptoms

Occurs after inhalation of fungal spores.

B. Central Nervous System Cryptococcosis

Affects the brain and spinal cord.

Common Form

Cryptococcal meningitis

Symptoms

Severe headache

Neck stiffness

Fever

Confusion

Sensitivity to light

Seizures

This is the most dangerous form.

C. Disseminated Cryptococcosis

The infection spreads throughout the body.

Organs affected

Skin

Blood

Bones

Eyes

Internal organs

Usually occurs in severely immunocompromised individuals.

2. Based on Immune Status

A. Opportunistic Cryptococcosis

Occurs mainly in people with weakened immunity.

Common in:

HIV/AIDS patients

Organ transplant recipients

Cancer patients

Long-term steroid users

B. Non-opportunistic Cryptococcosis

Occurs in people with normal immune systems, more commonly with Cryptococcus gattii infections.

Cause of Cryptococcosis

Caused by inhalation of fungal spores from the environment.

Common sources:

Soil contaminated with bird droppings

Pigeon droppings

Decaying wood and trees

Description of the Disease

Cryptococcosis is a systemic fungal infection that begins when fungal spores are inhaled into the lungs. In some individuals, especially those with weak immunity, the fungus spreads through the bloodstream to the brain and other organs.

The disease may develop slowly and can become life-threatening if untreated.

Signs and Symptoms

Lung Symptoms

Dry cough

Fever

Chest discomfort

Breathing difficulty

Brain Symptoms

Persistent headache

Vomiting

Confusion

Blurred vision

Neck stiffness

General Symptoms

Weight loss

Fatigue

Skin lesions

Diagnosis

Methods include:

Blood tests

Cerebrospinal fluid (CSF) examination

Fungal culture

Chest X-ray or CT scan

Cryptococcal antigen test

Treatment

Treatment usually involves antifungal medications.

Common drugs:

Amphotericin B

Fluconazole

Flucytosine

Fluconazole

Amphotericin B

Prevention

Avoid exposure to bird droppings

Early HIV treatment

Strengthening immune health

Prompt medical treatment for symptoms

Complications

If untreated, cryptococcosis may cause:

Brain damage

Coma

Respiratory failure

Organ failure

Death

Public Health Importance

Cryptococcosis is one of the leading causes of fungal meningitis worldwide and is especially dangerous in people living with HIV/AIDS. Early diagnosis and antifungal treatment greatly improve survival

Malaria

Malaria is a serious parasitic infectious disease caused by Plasmodium parasites and transmitted to humans through the bite of infected female Anopheles mosquitoes.

It is one of the most common tropical diseases, especially in parts of Nigeria, Africa, Asia, and South America.

Classification of Malaria

1. Based on the Causative Parasite

A. Plasmodium falciparum Malaria

The most dangerous type

Common in Africa

Causes severe malaria and high death rates

Features

Severe anemia

Brain complications

Organ failure

B. Plasmodium vivax Malaria

Common in Asia and Latin America

Can remain dormant in the liver and relapse later

C. Plasmodium malariae Malaria

Usually milder

May persist in the blood for years

D. Plasmodium ovale Malaria

Similar to P. vivax

Can also relapse

E. Plasmodium knowlesi Malaria

Mainly found in Southeast Asia

Transmitted from monkeys to humans

2. Based on Severity

A. Uncomplicated Malaria

Mild to moderate illness without organ failure.

Symptoms

Fever

Chills

Sweating

Headache

Weakness

Vomiting

B. Severe (Complicated) Malaria

A life-threatening condition mostly caused by Plasmodium falciparum.

Complications

Cerebral malaria (brain involvement)

Severe anemia

Kidney failure

Breathing difficulty

Coma

Description of Malaria

Malaria occurs when infected mosquitoes inject parasites into the bloodstream during a bite. The parasites travel to the liver, multiply, and later infect red blood cells.
The destruction of red blood cells causes fever and anemia.
Transmission of Malaria

Main transmission:

Bite of infected female Anopheles mosquito

Other rare methods:

Blood transfusion

Organ transplant

From mother to baby during pregnancy

Signs and Symptoms

Early Symptoms

Fever

Chills

Sweating

Headache

Body pain

Fatigue

Severe Symptoms

Convulsions

Confusion

Difficulty breathing

Severe weakness

Loss of consciousness

Diagnosis

Common diagnostic methods:

Rapid diagnostic test (RDT)

Blood smear microscopy

PCR testing

Treatment

Treatment depends on the severity and parasite type.

Common Antimalarial Drugs

Artemisinin-based combination therapy (ACT)

Chloroquine (in sensitive areas)

Quinine

Primaquine

Artemether/lumefantrine

Quinine

Prevention of Malaria

Sleeping under insecticide-treated bed nets

Indoor insecticide spraying

Eliminating stagnant water

Wearing protective clothing

Taking preventive antimalarial medicine when traveling

Complications of Malaria

If untreated, malaria may cause:

Severe anemia

Brain damage

Organ failure

Pregnancy complications

Death

Public Health Importance

Malaria remains a major health problem in tropical countries. Children under five years and pregnant women are at highest risk. Early diagnosis and proper treatment greatly reduce complications and deaths.

Amoebiasis (Entamoeba histolytica Infection)

Amoebiasis is a parasitic infectious disease caused by the protozoan parasite Entamoeba histolytica. It mainly affects the intestines but may also spread to the liver and other organs.

The disease is common in areas with poor sanitation and contaminated food or water.

Classification of Amoebiasis

1. Intestinal Amoebiasis

This form affects the intestines.

Types

A. Asymptomatic Intestinal Amoebiasis

Person carries the parasite without symptoms

Can still spread infection to others

B. Amoebic Dysentery

A severe intestinal infection.

Symptoms

Bloody diarrhea

Abdominal pain

Fever

Mucus in stool

Frequent bowel movements

2. Extraintestinal Amoebiasis

Occurs when the parasite spreads outside the intestines.

A. Hepatic Amoebiasis (Liver Amoebiasis)

Most common extraintestinal form.

Features

Liver abscess

Fever

Right upper abdominal pain

Enlarged liver

B. Pulmonary Amoebiasis

Affects the lungs.

C. Cerebral Amoebiasis

Rare but severe infection affecting the brain.

Cause of Amoebiasis

Main cause:

Infection by Entamoeba histolytica

Transmission occurs through:

Contaminated food

Contaminated water

Poor hygiene

Fecal-oral transmission

Risk Factors

Poor sanitation

Crowded living conditions

Unsafe drinking water

Malnutrition

Weak immune system

Signs and Symptoms

Intestinal Symptoms

Diarrhea

Bloody stool

Abdominal cramps

Nausea

Weight loss

Severe Symptoms

Liver pain

Fever

Fatigue

Abscess formation

Diagnosis

Methods include:

Stool examination

Microscopy

Antigen tests

PCR testing

Ultrasound or CT scan for liver abscess

Treatment

Common medications:

Metronidazole

Tinidazole

Paromomycin

Metronidazole

Tinidazole

Prevention

Drink clean water

Wash hands properly

Proper sewage disposal

Wash fruits and vegetables

Maintain food hygiene

Complications

If untreated, amoebiasis may cause:

Liver abscess

Intestinal perforation

Severe dehydration

Spread to lungs or brain

Death in severe cases

Public Health Importance

Amoebiasis is one of the leading parasitic causes of death worldwide. Proper sanitation, early diagnosis, and treatment greatly reduce complications and transmission.

Giardiasis

Giardiasis is a parasitic infectious disease caused by the protozoan parasite Giardia lamblia (also called Giardia intestinalis or Giardia duodenalis). It mainly affects the small intestine and causes digestive problems such as diarrhea and abdominal cramps.

Classification of Giardiasis

1. Based on Type of Infectious Disease

A. Parasitic Infectious Disease

Giardiasis belongs to the group of parasitic diseases because it is caused by a protozoan parasite.

B. Protozoal Infection

It is specifically classified as a protozoal infection because the causative organism is a single-celled protozoan.

Description of Giardiasis

Giardiasis occurs when a person ingests cysts of the Giardia parasite through contaminated:

Water

Food

Hands

Surfaces

The parasite lives in the small intestine where it interferes with digestion and nutrient absorption.
It is common in:

Areas with poor sanitation

Contaminated water supplies

Daycare centers

Travelers

Campers drinking untreated water

Causes of Giardiasis

Main cause:

Infection by Giardia lamblia

Transmission occurs through:

Drinking contaminated water

Eating contaminated food

Poor hygiene

Person-to-person contact

Common sources:

Rivers and streams

Poorly treated drinking water

Contaminated swimming pools

Signs and Symptoms

Symptoms may appear 1–2 weeks after infection.

Common Symptoms

Diarrhea

Greasy or foul-smelling stool

Abdominal cramps

Bloating

Nausea

Gas (flatulence)

Fatigue

Weight loss

Severe or Chronic Cases

Malnutrition

Dehydration

Vitamin deficiency

Poor growth in children

Diagnosis

Doctors diagnose giardiasis using:

Stool examination

Stool antigen tests

Microscopic analysis

Molecular tests

Treatment

Giardiasis is usually treated with antiparasitic medications.
Common drugs:

Metronidazole

Tinidazole

Nitazoxanide

Metronidazole

Tinidazole

Prevention

Drink clean or boiled water

Wash hands properly

Wash fruits and vegetables

Avoid swallowing water while swimming

Practice good sanitation

Complications

Untreated giardiasis may lead to:

Chronic diarrhea

Dehydration

Malnutrition

Lactose intolerance

Growth problems in children

Public Health Importance

Giardiasis is one of the most common waterborne parasitic infections worldwide. Proper sanitation, safe water supply, and hygiene practices are important for prevention and control.

Toxoplasmosis

Toxoplasmosis is a parasitic infectious disease caused by the protozoan parasite Toxoplasma gondii. It affects humans and animals and is commonly associated with cats, contaminated food, and undercooked meat.

Most healthy people may have mild or no symptoms, but the disease can become severe in pregnant women and people with weak immune systems.

Classification of Toxoplasmosis

1. Based on Mode of Infection

A. Congenital Toxoplasmosis

Occurs when an infected pregnant woman passes the parasite to her unborn baby through the placenta.

Effects

Miscarriage

Blindness

Brain damage

Developmental problems

B. Acquired Toxoplasmosis

Occurs after birth through infection from contaminated sources.

Common Sources

Undercooked meat

Cat feces

Contaminated water or soil

Unwashed fruits and vegetables

2. Based on Immune Status

A. Immunocompetent Toxoplasmosis

Occurs in people with normal immune systems.

Features

Mild or no symptoms

Swollen lymph nodes

Fever

Fatigue

Muscle aches

B. Opportunistic Toxoplasmosis

Occurs in immunocompromised individuals such as HIV/AIDS patients.

Features

Brain infection (toxoplasmic encephalitis)

Confusion

Seizures

Headaches

Vision problems

This form can be life-threatening

Sleeping Sickness (African Trypanosomiasis)

African trypanosomiasis, commonly called sleeping sickness, is a parasitic infectious disease caused by Trypanosoma parasites and transmitted through the bite of infected tsetse flies found mainly in sub-Saharan Africa.

The disease affects the blood, lymphatic system, and eventually the brain and nervous system.

Classification of Sleeping Sickness

Sleeping sickness is classified into two major types based on the parasite involved.

1. Gambian Sleeping Sickness

Scientific Name:

Trypanosoma brucei gambiense

Characteristics

Most common form

Found mainly in West and Central Africa

Develops slowly over months or years

Causes chronic infection

Symptoms

Fever

Swollen lymph nodes

Headache

Fatigue

Sleep disturbances

Mental confusion in later stages

This type accounts for most human cases.

2. Rhodesian Sleeping Sickness

Scientific Name:

Trypanosoma brucei rhodesiense

Characteristics

Found mainly in East and Southern Africa

Develops rapidly

Causes acute infection

More severe and aggressive

Symptoms

High fever

Rapid weakness

Organ damage

Neurological complications

Coma in advanced stages

Description of Sleeping Sickness

Sleeping sickness is a vector-borne parasitic disease transmitted by the bite of an infected tsetse fly.

After entering the body, the parasites multiply in the blood and lymph. If untreated, they invade the central nervous system and disrupt normal brain function.

The disease gets its name from the severe sleep disturbances it causes.

Cause

Caused by:

Trypanosoma brucei gambiense

Trypanosoma brucei rhodesiense

Transmitted through:

Tsetse fly bites

Rare transmission methods:

Mother-to-child transmission

Blood transfusion

Organ transplantation

Signs and Symptoms

Early Stage

Fever

Joint pain

Headache

Swollen lymph nodes

Fatigue

Late Stage (Neurological Stage)

Confusion

Personality changes

Difficulty walking

Poor coordination

Daytime sleepiness

Nighttime insomnia

Coma

Diagnosis

Methods include:

Blood examination

Microscopic detection of parasites

Lymph node aspiration

Spinal fluid examination

Serological tests

Treatment

Treatment depends on the stage and type of disease.

Early Stage Drugs

Pentamidine

Suramin

Late Stage Drugs

Melarsoprol

Eflornithine

Nifurtimox combination therapy

Pentamidine

Melarsoprol

Prevention

Avoid tsetse fly bites

Wear long-sleeved clothing

Use insect repellents

Control tsetse fly populations

Early screening and treatment

Complications

If untreated, sleeping sickness may lead to:

Brain damage

Severe neurological disorders

Coma

Death

Public Health Importance

Sleeping sickness remains an important tropical disease in parts of Africa. Early diagnosis and treatment greatly improve survival and reduce transmission.

Classification and Description of Helminths (Parasitic Worms)

Helminths are parasitic worms that live inside the human body and obtain nutrients from their host. They mainly infect the intestines, blood, liver, lungs, muscles, and other organs. Helminth infections are common in areas with poor sanitation and contaminated food or water.

Helminthiasis

Classification of Helminths

Helminths are classified into three major groups:

1. Nematodes (Roundworms)

These are long, cylindrical, unsegmented worms.

Characteristics

Round body shape

Separate male and female worms

Many live in the intestines

Examples

Ascaris lumbricoides (roundworm)

Hookworms

Pinworms

Filarial worms

Diseases Caused

Ascariasis

Hookworm infection

Enterobiasis

Filariasis

2. Cestodes (Tapeworms)

Flat, segmented worms that usually live in the intestines.

Characteristics

Ribbon-like body

Segmented structure

Attach to intestinal wall using suckers

Examples

Taenia solium (pork tapeworm)

Taenia saginata (beef tapeworm)

Echinococcus

Diseases Caused

Taeniasis

Cysticercosis

Hydatid disease

3. Trematodes (Flukes)

Leaf-shaped flatworms that infect blood vessels, liver, lungs, or intestines.

Characteristics

Flat and leaf-like

Complex life cycles

Often use snails as intermediate hosts

Examples

Schistosoma species

Liver flukes

Lung flukes

Diseases Caused

Schistosomiasis (Bilharzia)

Liver fluke disease

Description of Common Helminth Infections

A. Ascariasis

Caused by Ascaris lumbricoides.

Transmission

Eating food contaminated with worm eggs

Symptoms

Abdominal pain

Malnutrition

Intestinal blockage

B. Hookworm Infection

Transmission

Larvae penetrate the skin, often through bare feet.

Symptoms

Anemia

Weakness

Fatigue

C. Taeniasis (Tapeworm Infection)

Transmission

Eating undercooked pork or beef.

Symptoms

Weight loss

Abdominal discomfort

Nutritional deficiency

D. Schistosomiasis (Bilharzia)

Transmission

Contact with contaminated freshwater containing parasite larvae.

Symptoms

Blood in urine or stool

Liver damage

Abdominal pain

Schistosomiasis

Mode of Transmission of Helminths

Helminths spread through:

Contaminated food or water

Poor sanitation

Walking barefoot on contaminated soil

Insect vectors

Undercooked meat

Diagnosis

Common diagnostic methods:

Stool examination

Blood tests

Microscopy

Imaging scans

Treatment

Antiparasitic medicines are commonly used.

Examples:

Albendazole

Mebendazole

Praziquantel

Albendazole

Praziquantel

Prevention

Proper handwashing

Safe drinking water

Cooking meat thoroughly

Wearing footwear

Proper sanitation

Deworming programs

Complications

Untreated helminth infections may cause:

Malnutrition

Anemia

Organ damage

Growth problems in children

Intestinal obstruction

Schistosomiasis (Bilharzia)

Schistosomiasis is a parasitic infectious disease caused by blood flukes (worms) of the genus Schistosoma. It is commonly found in tropical and subtropical regions, especially in areas with poor sanitation and contaminated freshwater.

People become infected when they come into contact with freshwater containing parasite larvae released by infected snails.

Classification of Schistosomiasis

Schistosomiasis is classified under:

1. Parasitic Infectious Diseases

Because it is caused by parasites.

2. Helminthic Diseases

It belongs to a group of diseases caused by parasitic worms (helminths).

3. Waterborne Tropical Diseases

Transmission occurs through contaminated freshwater.

Types of Schistosomiasis

A. Intestinal Schistosomiasis

Affects the intestines and liver.

Caused by:

Schistosoma mansoni

Schistosoma japonicum

Symptoms:

Abdominal pain

Bloody stool

Diarrhea

Enlarged liver

B. Urinary (Urogenital) Schistosomiasis

Affects the urinary tract and bladder.

Caused by:

Schistosoma haematobium

Symptoms:

Blood in urine

Pain during urination

Bladder damage

Kidney complications

Description of Schistosomiasis

The disease develops when parasite larvae penetrate human skin during contact with contaminated water such as:

Rivers

Lakes

Ponds

Irrigation canals

After entering the body:

The larvae travel through the bloodstream

Mature into adult worms

Produce eggs

Eggs damage tissues and organs

Transmission

Schistosomiasis spreads through:

Swimming in contaminated water

Bathing in infected rivers or lakes

Farming or fishing in contaminated water

It is not usually spread directly from person to person.

Signs and Symptoms

Early Symptoms

Itchy skin rash

Fever

Fatigue

Muscle pain

Chronic Symptoms

Blood in urine or stool

Abdominal swelling

Liver enlargement

Anemia

Kidney damage

Infertility in severe cases

Diagnosis

Methods include:

Urine examination

Stool examination

Blood tests

Ultrasound scans

Detection of parasite eggs

Treatment

The main drug used is:

Praziquantel

Praziquantel kills adult worms and is highly effective.

Prevention

Avoid swimming in contaminated freshwater

Improve sanitation

Control freshwater snails

Use safe water supplies

Community drug treatment programs

Complications

Untreated schistosomiasis may cause:

Liver fibrosis

Kidney failure

Bladder cancer

Infertility

Chronic pain

Severe organ damage

Public Health Importance

Schistosomiasis is one of the most common neglected tropical diseases in Africa and affects millions of people yearly, especially children and rural communities

Tapeworm Infection

Tapeworm infection is a parasitic disease caused by flatworms known as tapeworms (cestodes). Humans become infected mainly by eating contaminated or undercooked meat, pork, beef, or fish containing tapeworm larvae.

Tapeworms live in the intestines and absorb nutrients from the host's body.

Classification of Tapeworm Infection

Tapeworm infections are classified under:

1. Parasitic Infectious Diseases

These are diseases caused by parasites that live inside or on the human body.

2. Helminthic Infections

Tapeworms belong to a group of parasitic worms called helminths.

Helminths are divided into:

Tapeworms (Cestodes)

Roundworms (Nematodes)

Flukes (Trematodes)

Tapeworm infection specifically belongs to the cestode category.

Types of Tapeworms

A. Taenia saginata

Beef tapeworm

Acquired from undercooked beef

B. Taenia solium

Pork tapeworm

Acquired from undercooked pork

Can cause cysticercosis when larvae spread to tissues or brain

C. Diphyllobothrium latum

Fish tapeworm

Acquired from raw or undercooked fish

D. Hymenolepis nana

Dwarf tapeworm

Common in children

Causes

Tapeworm infection occurs through:

Eating undercooked meat or fish

Poor sanitation

Contaminated food or water

Poor hand hygiene

Symptoms

Some infected people may have no symptoms.

Common Symptoms

Abdominal pain

Nausea

Diarrhea

Weight loss

Weakness

Increased appetite

Severe Symptoms

Especially in cysticercosis:

Headaches

Seizures

Brain inflammation

Vision problems

Mode of Transmission

Transmission occurs through:

Ingestion of tapeworm eggs or larvae

Contaminated food or water

Fecal-oral route

Diagnosis

Doctors diagnose tapeworm infection using:

Stool examination

Microscopic detection of eggs

Blood tests

CT scan or MRI in severe tissue infections

Treatment

Treatment includes antiparasitic medications such as:

Praziquantel

Albendazole

Niclosamide

Praziquantel

Albendazole

Prevention

Cook meat thoroughly

Wash hands regularly

Maintain proper sanitation

Drink clean water

Proper disposal of human waste

Meat inspection in slaughterhouses

Complications

Untreated tapeworm infection may lead to:

Malnutrition

Intestinal blockage

Organ damage

Neurocysticercosis (brain infection)

Public Health Importance

Tapeworm infections are more common in areas with:
Poor sanitation

Inadequate meat inspection

Consumption of raw or undercooked meat

Health education and food safety are important for

prevention.

Hookworm Infection

Hookworm infection is a parasitic disease caused by intestinal roundworms that live in the small intestine and feed on blood.

The two main species affecting humans are:

Ancylostoma duodenale

Necator americanus

1. Classification of Hookworm Infection

Hookworm infection can be classified in several ways:

A. By Causative Organism (Etiology)

Ancylostoma duodenale infection

Necator americanus infection

B. By Type of Disease

Helminthic infection (worm infection)

Soil-transmitted helminthiasis

Intestinal nematode infection

C. By Mode of Transmission

Percutaneous infection (most common) – larvae penetrate skin (usually bare feet)
Oral transmission (less common) – ingestion of contaminated food or water
D. By Severity

Mild infection – few worms, little or no symptoms

Moderate infection – anemia and weakness begin

Severe infection – heavy blood loss, severe iron-deficiency anemia, growth retardation in children

2. Description of Hookworm Infection

Hookworm infection occurs when larvae in contaminated soil enter the human body, usually through the skin. The larvae travel through the bloodstream to the lungs, are coughed up and swallowed, and finally mature in the small intestine.

Life Cycle Summary:

Eggs passed in feces contaminate soil

Larvae hatch and develop in warm, moist soil

Infective larvae penetrate human skin

Travel via blood → lungs → throat → swallowed

Mature in small intestine and feed on blood

3. Clinical Features (Symptoms)

Itchy rash at entry site (“ground itch”)

Cough or wheezing (lung migration stage)

Abdominal pain or discomfort

Chronic blood loss → iron-deficiency anemia

Fatigue and weakness

Pale skin

In children: poor growth and developmental delay

4. Complications

Severe anemia

Protein deficiency

Heart strain (in chronic heavy infections)

Stunted growth in children

5. Prevention

Wearing footwear in contaminated soil areas

Proper sanitation and use of toilets

Avoid open defecation

Deworming programs in endemic areas

Health education

Ascariasis — Classification and Description

Classification

Ascariasis is classified as:

Type of disease: Parasitic infectious disease

Causative agent: Helminth (parasitic roundworm)

Organism: Ascariasis

Class of parasite: Nematode (roundworm)

Transmission route: Feco-oral transmission (ingestion of eggs from contaminated food, water, or soil)

Epidemiological group: Soil-transmitted helminthiasis

Description

Ascariasis is an intestinal infection caused by the large roundworm Ascaris lumbricoides. It is one of the most common human worm infections
worldwide, especially in areas with poor sanitation and hygiene.

After a person swallows infective eggs, the larvae hatch in the intestine, penetrate the intestinal wall, and migrate through the bloodstream to the lungs. From the lungs, they are coughed up and swallowed again, returning to the intestine where they mature into adult worms.

Adult worms live in the small intestine and can grow very large, sometimes causing intestinal blockage or nutritional problems.

Key Features

Site of infection: Small intestine (adult stage), lungs (larval migration stage)

Symptoms:

Abdominal pain

Malnutrition and weight loss

Cough (during lung migration)

Intestinal obstruction (severe cases)

Worms may be seen in stool or vomit

Mode of Transmission

Eating unwashed vegetables or fruits contaminated with eggs
Drinking contaminated water

Poor hand hygiene (fecal contamination)

Prevention

Proper sanitation and toilet use

Washing hands with soap

Washing food thoroughly

Regular deworming in endemic areas

Ectoparasites: Classification and Description

Ectoparasites are parasites that live on the surface of the host's body rather than inside it. They usually attach to the skin, hair, or outer body parts and feed on blood, skin, or body fluids. They can also transmit diseases.

1. Arthropod Ectoparasites (Most Important Group)

These are the most common ectoparasites affecting humans and animals. They have jointed legs and an exoskeleton.

a) Insects

These have 3 body segments and 6 legs.

Lice (Pediculus, Pthirus species)

Live on human hair and clothing

Feed on blood

Cause pediculosis (itching, irritation)

Examples: head lice, body lice, pubic lice

Fleas (Siphonaptera)

Small, wingless, very fast jumping insects

Feed on blood of humans and animals

Can transmit diseases like plague

Bedbugs (Cimex lectularius)

Live in bedding, mattresses, furniture cracks

Feed at night on blood

Cause itchy bites and skin irritation

b) Arachnids

These have 8 legs and include mites and ticks.

Ticks (Ixodidae, Argasidae)

Attach firmly to skin for long feeding periods

Found in animals, grass, and bushes

Transmit diseases like Lyme disease and typhus

Mites (Sarcoptes, Demodex species)

Very small, often microscopic

Live in skin or hair follicles

Cause scabies (intense itching, burrows in skin)

2. Non-Arthropod Ectoparasites (Less Common)

These are not insects or arachnids but still live externally.

Leeches (Hirudinea)

Worm-like parasites found in freshwater

Attach to skin and suck blood

Used sometimes in medical therapy but can be parasitic in nature

Summary

Ectoparasites are mainly divided into:

Insects: lice, fleas, bedbugs

Arachnids: ticks, mites

Others: leeches

They are important medically because they cause irritation, blood loss, and can transmit infectious diseases.

Scabies

Scabies is a contagious skin condition caused by a tiny mite that burrows into the skin, leading to intense itching and rash.

Classification of Scabies

Scabies can be classified in different ways:

1. By cause (etiology)

Parasitic infectious disease

Caused by the mite Sarcoptes scabiei var. hominis

2. By severity/clinical type

Classic (typical) scabies

Most common form

Mild to moderate mite infestation

Intense itching, especially at night

Crusted (Norwegian) scabies

Severe, highly contagious form

Massive number of mites on the skin

Thick crusts form on skin

Often occurs in immunocompromised people or the elderly

Nodular scabies

Characterized by persistent itchy nodules

Often found in genital or armpit areas even after treatment

3. By duration

Acute scabies

First infection, symptoms develop after 2–6 weeks (or faster if reinfection)

Chronic scabies

Long-lasting infection due to delayed or incomplete treatment

Description of Scabies

Scabies is a skin infestation disease where the female mite burrows into the upper layer of the skin to lay eggs. The body reacts to the mites, eggs, and waste products, causing:

Main features:

Severe itching (worse at night)

Small red bumps or rash

Burrow tracks (thin, wavy lines on skin)

Common areas:

Between fingers

Wrists

Elbows

Waistline

Genitals

Buttocks

Mode of transmission:

Direct skin-to-skin contact (most common)

Sharing clothes, bedding, or towels (less common but possible)

Incubation period:

2 to 6 weeks for first infection

1 to 4 days for reinfection

Lice

Lice infestation is a parasitic condition caused by tiny wingless insects called lice (Pediculus and Pthirus species) that live on the human body and feed on blood. The medical term for lice infestation is pediculosis.

Classification of Lice Infestation (Pediculosis)

Lice infestations are classified based on the part of the body affected:

1. Pediculosis capitis (Head lice)

Pediculosis capitis

Location: Scalp and hair

Causative organism: Pediculus humanus capitis

Common in: School children

Spread: Direct head-to-head contact, shared combs, hats, pillows

Main symptom: Severe scalp itching, especially behind ears and back of neck

Findings: Tiny white eggs (nits) attached to hair shafts

2. Pediculosis corporis (Body lice)

Pediculosis corporis

Location: Clothing and body folds (not usually on skin directly)

Causative organism: Pediculus humanus corporis

Common in: Poor hygiene, overcrowded living conditions

Spread: Contaminated clothing and bedding

Main symptom: Intense itching and skin irritation

Complications: Can transmit diseases like typhus and trench fever

3. Pediculosis pubis (Pubic lice / “crabs”)

Pediculosis pubis

Location: Pubic hair, sometimes eyelashes or armpits

Causative organism: Pthirus pubis

Transmission: Mostly sexual contact, sometimes shared towels or bedding

Main symptom: Itching in the pubic area

Appearance: Crab-like lice attached to coarse hair

General Description of Lice Infestation

Caused by ectoparasites (parasites living on the skin surface)

Lice survive by sucking human blood several times a day

They lay eggs (nits) that stick firmly to hair or clothing fibers

Causes itching, irritation, and secondary bacterial infections from scratching

Summary

Lice infestation (pediculosis) is classified into:

Head lice (scalp)

Body lice (clothing/body)

Pubic lice (genital region)

Each type is caused by a different species but all lead to itching and discomfort due to blood-feeding parasites.

Creutzfeldt-Jakob

Creutzfeldt-Jakob disease is a rare, rapidly progressive, fatal neurodegenerative disorder caused by misfolded proteins called prions. It belongs to a group of diseases known as transmissible spongiform encephalopathies (TSEs).

Classification of Creutzfeldt–Jakob Disease (CJD)

CJD is classified based on cause and origin into four main types:

1. Sporadic CJD (sCJD) – Most common (~85%)

Occurs without known cause or exposure

Usually affects people aged 55–75 years

Thought to arise from spontaneous misfolding of normal prion protein in the brain

2. Familial (Genetic) CJD

Caused by inherited mutations in the PRNP gene

Runs in families (autosomal dominant inheritance)

Accounts for about 10–15% of cases

3. Iatrogenic CJD

Acquired through medical procedures

Rare, but can occur via:

Contaminated surgical instruments (especially brain surgery)
Human-derived growth hormone

Corneal or dural transplants (historically)

4. Variant CJD (vCJD)

Linked to consumption of beef contaminated with bovine spongiform encephalopathy (BSE) (“mad cow disease”)

Affects younger individuals (teenagers to young adults)
More psychiatric symptoms early in the disease

Description (Pathophysiology & Key Features)

Cause

Misfolded prion proteins (PrP^Sc) convert normal brain proteins (PrP^C) into abnormal forms
This leads to:

Brain cell death

Sponge-like holes in brain tissue (spongiform change)
Clinical Features

CJD progresses rapidly over weeks to months:

Rapid dementia

Memory loss and confusion

Personality changes

Muscle jerks (myoclonus)

Visual disturbances (blurred vision, hallucinations)

Difficulty walking and coordination (ataxia)

Mutism and coma in late stages

Diagnosis

Clinical symptoms + rapid progression

MRI brain: characteristic cortical “ribboning” or basal ganglia changes
EEG: periodic sharp wave complexes (in some cases)
CSF tests: 14-3-3 protein, RT-QuIC assay (highly sensitive)
Definitive diagnosis: brain biopsy or autopsy

Treatment

No cure exists

Treatment is supportive only

Symptom control (sedatives for agitation, anti-seizure drugs)

Prognosis

Always fatal

Most patients die within 6 months to 1 year after symptom onset

Classification and Description of Mad Cow Disease

What is Mad Cow Disease?

Mad cow disease is a rare, fatal brain disorder that affects cattle. It is scientifically called Bovine Spongiform Encephalopathy (BSE). The disease slowly destroys the brain and nervous system, causing abnormal behavior, loss of coordination, and eventually death.

It belongs to a group of diseases called Transmissible Spongiform Encephalopathies (TSEs), also known as prion diseases.

Classification of Mad Cow Disease

1. By Type of Infectious Agent

Mad cow disease is classified as a:

Prion Infectious Disease

Unlike bacteria, viruses, fungi, or parasites, BSE is caused by an abnormal protein called a prion.

Prions are misfolded proteins that force normal brain proteins to become abnormal too. This leads to sponge-like holes in the brain tissue.

2. By Affected Organ System

It is classified as a:

Neurological Infectious Disease

Because it mainly attacks the:

Brain

Spinal cord

Nervous system

3. By Species Affected

In Animals:

Bovine Spongiform Encephalopathy (BSE) affects cattle.

In Humans:

Humans can develop a related disease called:

Variant Creutzfeldt–Jakob Disease (vCJD)

This may occur after eating contaminated beef products from infected cattle.

Description of Mad Cow Disease

Cause

Mad cow disease is caused by abnormal prion proteins. Cattle usually become infected by eating feed containing infected animal tissues, especially brain or spinal cord material.

Signs and Symptoms in Cattle

Infected cows may show:

Aggressive or nervous behavior

Difficulty walking

Loss of coordination

Weight loss

Trembling

Falling easily

Reduced milk production

Difficulty standing

The disease gradually worsens until death.

Signs and Symptoms in Humans (vCJD)

Humans with variant Creutzfeldt–Jakob Disease may develop:

Memory loss

Depression or anxiety

Personality changes

Difficulty speaking

Poor coordination

Muscle jerks

Dementia

Paralysis

The disease is fatal.

Transmission

Mad cow disease can spread through:

In Cattle

Eating contaminated animal feed

In Humans

Eating contaminated beef products

Rarely through contaminated medical instruments or blood transfusion

It does not usually spread through casual contact.

Diagnosis

Doctors and veterinarians may use:

Brain scans

Neurological examinations

Laboratory tests

Brain tissue examination after death

Prevention

Prevention methods include:

Banning animal remains in cattle feed

Testing cattle for BSE

Destroying infected animals

Strict meat inspection laws

Treatment

There is currently no cure for mad cow disease or variant Creutzfeldt–Jakob Disease. Treatment only helps reduce symptoms and provide comfort.

Summary

Mad cow disease (BSE) is a deadly prion disease affecting cattle and the nervous system. It is caused by abnormal proteins called prions and can spread to humans through contaminated beef, causing variant Creutzfeldt–Jakob Disease. The disease has no cure, making prevention extremely important.

Kuru

Classification of Kuru

Kuru is classified as a prion disease (also called a transmissible spongiform encephalopathy).

It is a rare, fatal disorder that affects the brain and nervous system.

Scientific Classification

Disease type: Neurodegenerative infectious disease

Cause: Prions (abnormal infectious proteins)

Body system affected: Central nervous system (brain and nerves)

Description of Kuru

Kuru is a rare brain disease once found mainly among the Fore people of Papua New Guinea.

It occurs when abnormal proteins called prions damage brain tissue. These prions cause the brain to develop tiny holes, giving it a sponge-like appearance under a microscope.

Kuru became known because it spread through ritual cannibalism, especially when people consumed infected human brain tissue during funeral practices. The disease has now become extremely rare because those practices stopped.

Causes of Kuru

Infection by abnormal prion proteins

Eating infected human nervous tissue

Transmission through ritual cannibalism

Signs and Symptoms

Kuru develops slowly over months or years.

Early Symptoms

Headache

Joint pain

Difficulty walking

Loss of balance

Later Symptoms

Severe shaking or tremors

Uncontrolled movements

Difficulty speaking

Trouble swallowing

Emotional changes and inappropriate laughter

Progressive loss of coordination

Final Stage

Inability to walk or sit

Severe brain damage

Coma and death

Stages of Kuru

1. Ambulatory Stage

The patient can still walk but has poor coordination and tremors.

2. Sedentary Stage

The patient can no longer walk without support and develops severe movement problems.

3. Terminal Stage

The patient becomes bedridden, unable to speak properly, and eventually dies.

Diagnosis

Doctors may use:

Neurological examination

Brain imaging tests

Medical history

Laboratory studies of brain tissue

There is no simple cure test for kuru while a person is alive.

Treatment

There is currently:

No cure

No vaccine

No effective treatment

Care focuses on:

Feeding support

Comfort care

Managing symptoms

Prevention

Kuru prevention involves:

Avoiding contact with infected nervous tissue

Stopping cannibalistic practices

Public health education

Important Facts

Kuru is extremely rare today.

It belongs to the same disease group as:

Creutzfeldt–Jakob disease

Mad cow disease

Kuru is always fatal.

Symptoms may take many years to appear after infection.

Pneumocystis Pneumonia

Classification and Description of Pneumocystis Pneumonia (PCP)

Classification

Pneumocystis pneumonia (PCP) is classified as:

Type of disease: Opportunistic infectious disease

Category: Fungal infectious disease

Causative organism: Pneumocystis pneumonia caused by the fungus Pneumocystis jirovecii
Mainly affects: People with weakened immune systems
It is commonly associated with:

HIV/AIDS

Cancer patients receiving chemotherapy

Organ transplant recipients

People taking long-term corticosteroids or immunosuppressive drugs

Description of Pneumocystis Pneumonia

What It Is

Pneumocystis pneumonia is a serious lung infection caused by the fungus Pneumocystis jirovecii. The fungus attacks the lungs and causes inflammation and difficulty breathing.

Before modern HIV treatment became available, PCP was one of the most common life-threatening infections in AIDS patients.

Causes

The disease occurs when:

The immune system becomes very weak

The fungus multiplies inside the lungs

The lungs fill with inflammatory fluid and debris

The organism spreads through the air from person to person.

Symptoms

Common symptoms include:

Dry cough

Fever

Shortness of breath

Chest tightness

Fatigue

Rapid breathing

Weight loss

Symptoms usually develop gradually over days or weeks.

Risk Factors

People at higher risk include:

Individuals with HIV/AIDS and low CD4 count

Cancer patients

Organ transplant patients

Malnourished individuals

Premature infants

Elderly people with weak immunity

Diagnosis

Doctors may use:

Chest X-ray

CT scan

Sputum examination

Bronchoscopy

Blood oxygen tests

The lungs often show a “ground-glass” appearance on imaging.

Treatment

Common treatments include:

Antibiotic combination called trimethoprim-sulfamethoxazole (TMP-SMX)
Oxygen therapy

Corticosteroids in severe cases

Patients with HIV are also treated with antiretroviral therapy.
Prevention

Preventive measures include:

HIV treatment and monitoring

Preventive TMP-SMX medicine in high-risk patients

Good medical follow-up for immunocompromised individuals

Complications

If untreated, PCP may cause:

Severe respiratory failure

Lung damage

Low oxygen levels

Death

Summary

Pneumocystis pneumonia is a fungal opportunistic lung infection mainly affecting people with weakened immune systems, especially those with HIV/AIDS. It causes breathing problems, fever, and dry cough and can become life-threatening without treatment.

Oral Thrush

Classification and Description of Oral Thrush

What is Oral Thrush?

Oral thrush is a fungal infectious disease caused mainly by the fungus Candida albicans. It affects the mouth, tongue, inner cheeks, gums, throat, or palate. It is also called oral candidiasis.

Classification of Oral Thrush

Oral thrush is classified as:

1. By Type of Infectious Agent

Fungal Infectious Disease

Caused by fungi (yeasts)

Main organism: Candida albicans

2. By Clinical Form

A. Pseudomembranous Candidiasis

Most common type

White creamy patches appear on the tongue and mouth

Patches can be wiped off, leaving red sore areas

Common in babies, elderly people, and people with weak immunity

B. Erythematous (Atrophic) Candidiasis

Red, painful, inflamed areas in the mouth

Burning sensation

Often occurs after antibiotic use

C. Hyperplastic Candidiasis

Thick white patches that cannot be easily removed

Usually found on the cheeks or tongue

Can become chronic

D. Angular Cheilitis

Cracks and redness at the corners of the mouth

May occur together with oral thrush

Causes of Oral Thrush

Oral thrush develops when Candida fungi grow excessively in the mouth.
Common causes include:

Weak immune system

Poor oral hygiene

Diabetes

HIV/AIDS

Use of antibiotics

Use of steroid inhalers

Cancer treatment

Denture use

Malnutrition

Dry mouth

Signs and Symptoms

Common symptoms include:

White patches in the mouth

Redness and soreness

Burning sensation

Pain while eating or swallowing

Cracks at the mouth corners

Loss of taste

Cotton-like feeling in the mouth

Transmission

Oral thrush is usually not highly contagious, but Candida can spread through:

Kissing

Sharing utensils

Breastfeeding

Poorly cleaned dentures

Diagnosis

Doctors may diagnose oral thrush through:

Physical examination of the mouth

Throat swab or fungal culture

Microscopic examination

Blood tests if severe infection is suspected

Treatment

Treatment may include antifungal medicines such as:

Nystatin

Fluconazole

Clotrimazole

Other management:

Good oral hygiene

Rinsing mouth after steroid inhaler use

Controlling diabetes

Cleaning dentures regularly

Prevention

Ways to prevent oral thrush:

Brush teeth regularly

Avoid excessive sugar intake

Rinse mouth after antibiotics or inhalers

Stop smoking

Maintain strong immunity

Visit a dentist regularly

Complications

If untreated, oral thrush may lead to:

Difficulty swallowing

Spread of infection to the throat or esophagus

Recurring infections

Severe infection in people with weak immunity

Summary

Feature

Description

Disease Type

Fungal infectious disease

Main Cause

Candida albicans

Common Site

Mouth and tongue

Main Symptoms

White patches, soreness, burning

Treatment

Antifungal medicines

Prevention

Good oral hygiene and immune health

Cytomegalovirus (CMV)

Cytomegalovirus Infection is a common infectious disease caused by the human cytomegalovirus (CMV), a member of the herpesvirus family. Once a person is infected, the virus can remain dormant in the body for life and may reactivate later.

Classification of Cytomegalovirus

1. By Type of Infectious Agent

CMV is classified as a:

Viral Infectious Disease

Caused by a virus.

Specifically caused by Human Herpesvirus 5 (HHV-5).
Belongs to the Herpesviridae family.

2. By Mode of Transmission

Communicable Disease

CMV can spread from person to person through:

Saliva

Blood

Urine

Breast milk

Sexual contact

Organ transplantation

Pregnancy (mother to unborn child)

3. By Duration

Latent/Chronic Viral Infection

The virus may stay inactive in the body for years.

It can reactivate when immunity becomes weak.

4. By Population Affected

Congenital Infection

Occurs when a pregnant woman passes CMV to her unborn baby.

Opportunistic Infection

CMV may become severe in people with weak immune systems such as:

People with Human Immunodeficiency Virus Infection

Organ transplant recipients

Cancer patients receiving chemotherapy

Description of Cytomegalovirus

CMV is one of the most widespread viral infections worldwide. Many infected people may not show symptoms, especially healthy adults. However, severe illness can occur in newborns and immunocompromised individuals.

Causes

CMV is caused by:

Human Cytomegalovirus (HCMV)

A DNA virus in the herpesvirus group.

Signs and Symptoms

In Healthy Individuals

Some people may experience:

Fever

Fatigue

Sore throat

Swollen lymph nodes

Muscle aches

Others may have no symptoms at all.

In Newborn Babies (Congenital CMV)

Possible effects include:

Hearing loss

Vision problems

Seizures

Small head size (microcephaly)

Developmental delays

Jaundice

In Immunocompromised Patients

CMV may cause:

Pneumonia

Retinitis (eye infection that may cause blindness)

Colitis (intestinal inflammation)

Hepatitis

Brain infections

Transmission

CMV spreads through contact with infected body fluids such as:

Saliva

Urine

Tears

Blood

Semen

Vaginal fluids

Breast milk

It can also spread:

During pregnancy

Through blood transfusion

Through organ transplantation

Diagnosis

Doctors may diagnose CMV using:

Blood tests

PCR testing

Viral culture

Antibody tests

Imaging tests in severe cases

Treatment

There is no complete cure that removes CMV permanently, but antiviral medicines can control it. Common antiviral drugs include:

Ganciclovir

Valganciclovir

Foscarnet

Supportive medical care may also be needed.

Prevention

Preventive measures include:

Frequent hand washing

Avoiding contact with infected body fluids

Safe sexual practices

Screening blood and organ donors

Careful monitoring during pregnancy

Summary

Feature

Description

Disease Type

Viral infectious disease

Causative Agent

Human cytomegalovirus (HHV-5)

Family

Herpesviridae

Transmission

Body fluids, pregnancy, transplant

Main Risk Groups

Newborns, immunocompromised persons

Key Complications

Blindness, hearing loss, pneumonia, organ damage

Treatment

Antiviral medications

Her Imperial Dragonty Kraugathea Xitritona Yuheiron

Quadrans Empress of Dominion, Protector of Xi River and Eternal Sovereign of Quadrans Empire

Barthalmusic (Ajagara);
Marthalmusic (Ajagara);
Darthalmusic (Ajagara);

XIICBSE (Ghorakhal);

Nosographer, Steward of Circe and Morgan le Fay
Tarot System Architect

Kraugathea Imperial Press
Established 2026 A.D.